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Philippine Series of Specialized Collections of Abstracts
No. 2

PHILIPPINE PHARMACOLOGICAL ABSTRACTS

A classified collection of 229 summaries of Philippine books,
periodical articles, papers, and unpublished theses
in the field of Pharmacology.

Published by the

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FOREWORD

Pharmacology has always ranked high in the list of scientific and professional activities in the Philippines. Since time immemorial drugs from native plants, many of them endemic species, to be found nowhere else in the world, had been used in the Philippines. It may justly be assumed that not only foreign pharmacological enterprises are interested in raw materials to be found in the Philippines but the Philippine drug industry will also welcome the very first collection of abstracts of recorded knowledge. This is especially true since many of the publications presented on the following ninety-five pages are not well known or not easily accessible even to the Philippine pharmacologists.

In view of the importance of such a compilation, funds had been released by the Resident Representative of the United Nations Technical Assistance Board in the Philippines, Mr. John N. Corry, to employ a young scientist from the University of Santo Tomas for several months. Later on, she became a permanent staff member of the National Institute of Science and Technology.

The cooperative spirit of the libraries which were visited by Miss Elena Z. Alcala when searching for pertinent publications should be acknowledged with sincere gratitude. Most of them are centers of information for further studies on the subject of pharmacology.

CANUTO G. MANUEL
Commissioner
N I S T

PREFACE

In the efforts of the Division of Documentation to make available to scientists and technologists Philippine sources, the Philippine Series of Specialized Collections of Abstracts was started a year ago when the Abstracts of Philippine Publications on the Cadang-cadang Disease of the Coconut Palm was published as No.1 of the series. Number 2 is devoted to pharmacological literature entitled Philippine Pharmacological Abstracts, a publication that will surely find its way to a very big clientele. Among all the disciplines that early attracted Philippine professionals and scientists, pharmacological science perhaps ranks among the first five.

The main sources of this abstract collection are the Journal of the Philippine Pharmaceutical Association, Journal of the Philippine Medical Association, Philippine Journal of Science, MD Journal, Sto. Tomas Journal of Medicine, and Acta Medica Philippina. Of all other serials less than 3 titles each have been abstracted. Of significance is the inclusion of an English abstract of a Tagalog text (see no.82).

In this compilation of abstracts of 229 publications, periodical articles, theses, and monographs were dug and retrieved from the files of five research libraries - the University of Santo Tomas Library, the Centro Escolar University Library, the University of the Philippines Library, the Division of Documentation Library, and the Bureau of Private Schools Library. The oldest article included in the collection was published in the Spanish language by a Filipino pharmacologist in Farmaceutica de Filipinas in 1893, translated by Dr. Patrocinio Valenzuela in 1949 and published in the Journal of the Philippine Pharmaceutical Association. Several articles published at the turn of the century revealed a wealth of information on pharmacological studies undertaken in the Philippines. The compilation includes pertinent publications up to 1960.

The abstracts are rather longer than required by the accepted rules of abstracting. This was done for the benefit of the user, as most of the original texts are unknown abroad and are still less to be found in foreign libraries. Those readers who, in spite of the ample abstract, want to study the complete original text, are welcome to order xerocopies or microfilms by using an order form which is to be found on the last page of this publication.

Unlike the arrangement of entries in No.1 of the Series (Cadang-cadang Abstracts) which followed a chronological listing, the items in this present collection are arranged according to the UDC scheme, which is in effect an arrangement by subject. This is done to facilitate consultation or use of this compilation by subject specialists.

Also of great usefulness to the specialist will be the indexes devised to facilitate the location of specific information. At the back of this publication are an author index, a subject index, an index to local and common names, and an index to scientific names.

There is no claim for completeness nor for perfection in this compilation. There is always the possibility of missing important items due to imperfect distribution of Philippine publications and to time pressure in putting out this collection, lest the information become stale. A supplement or a revision of this collection is being planned even now as new articles are being published and old hidden ones are expected to crop up from sources unknown at present. We are, therefore, soliciting the cooperation of scientists in relaying to us any information as to the existence of publications that should be of value to pharmacological researchers so that we can include them in the contemplated supplement. Any such information will be greatly appreciated.

The gathering of information sources, the screening and selection as well as the abstracting were undertaken by Miss Elena Z. Alcala, B.S. in Chemical Engineering, first an emergency helper of the UNESCO Scientific Documentation Project, and now a permanent staff member of the Division of Documentation. She dedicated months of untiring efforts on the preparation of this publication. She was currently advised by Prof. Concordia Sanchez (head of the Documentation Services Section), by Mr. Quintin A. Eala (chief, Division of Documentation), and by Dr. Walter T. Lorch (UNESCO Scientific Documentation Specialist) whose training courses in abstracting Miss Alcala attended already in 1958. Revision and checking were done by Mr. Luis de la Paz and Miss Delia Torrijos, and the UDC classification and the indexes were made by Miss Torrijos, also a B.S. in Chemical Engineering. The technical part of this publication was handled by Miss Carmelita S. de Leon (preparing the manuscript on the electric typewriter), Mr. Paterno Laforteza (xerographic processing on the duplimat masters) and Mr. Daniel Alejandria (offset printing).

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PHARMACOLOGY

A classified collection of 229 summaries of Philippine books, papers and unpublished theses in the field of Pharmacology.

CHEMISTRY

543.8:581.48

1. A chemical study of the seeds of Anona squamosa Linn. Ma. Dulzura Laserna. Manila, University of Santo Tomas, 1956. 54p. tables, illus. 15 refs. (Thesis. M.S. in Pharmacy)

The seeds of Anona squamosa Linn. known locally as "atis" are known to possess medicinal properties. Preliminary analysis of the defatted portion of its seeds revealed the presence of alkaloids (quaternary type), proteins, sugars, glucosides, resins, hydrocyanic acid, and traces of saponins. Tests for cyanophoric glucosides and tannins gave negative results.

The proximate composition of the whole kernel was found to be: 5.75% moisture, 40.55% ether-soluble extractive, 19.76% crude protein, 2.05% ash, 7.72% crude fiber and 24.1% nitrogen-free extractive. The defatted kernel was found to contain: 36.14% crude protein, 3.42% ash, 16.05% crude fiber, and 44.385% carbohydrates (by difference).

Successive extraction of the powdered defatted seeds with selective organic solvents gave a total of 28.687% of extractives with water giving the highest amount, 25.04%; ethyl acetate, 2.125%; $CHCl_3$, 0.839%; and alcohol, 0.681%. 4.859% of resinous principle was obtained from the defatted sample. Its ash content was found to be rich in sodium oxide (13.07%) calcium oxide (12.70%), and small amounts of potassium, magnesium, sulfur, chlorine, iron oxide, alumina, and silicon.

Results of the carbohydrate partition of the defatted seeds were: 0.27% reducing sugars, 1.83% non-reducing sugars, 6.575% pentosans, 13.705% starch, and 20.45% gums. The carbohydrate distribution of the non-defatted seeds is also presented. The nitrogen distribution were as follows: 3.185% non-basic nitrogen, 1.475% basic nitrogen, 0.38% acid amine nitrogen, and 0.245% humin (melanin).

543.8:582.394.742

2. On the chemical composition and properties of the leaves of Pyrrosia varia (Kaulf.) Farwell. Angela Santos Nicodemus. Manila, University of Santo Tomas, 1958. 77p. tables, illus. 29 refs. (Thesis. M.S. in Pharmacy)

The botanical description of Pyrrosia varia (Kaulf.) Farwell, locally known as "dapo" is given. Its use as a hypotensive is explained in 4 cases presented. Other local plants with hypotensive activity are: "bawang" Allium sativum Linn., "sibakong" Theobroma cacao Linn., "takip-kohol" Centella asiatica Linn., and watermelon Citrullus vulgaris Schrad.

Preliminary analysis of "dapo" leaves revealed the presence of tannins, saponins, sugars, glycosides, fats, proteins, and resinous principles. Alkaloids and cyanophoric glycosides were not present. 17.02% tannins was obtained and determined to be of the catechol group. 28.24% saponin was obtained which had a characteristic property of producing an emulsion, although temporary, and ability to hold powders in suspension. The ether extract of the leaves yielded 9.68% resinous principle. Alcohol was found to be the best solvent for the drug, extracting 18.09% extractives, followed by H_2O extracting 13.40%. Ethyl acetate, ether, and petroleum ether extracted very small amounts.

The proximate chemical composition of the leaves was: 6.71% moisture, 4.78% ash, 2.83% crude fat, 41.16% crude fiber, 16.33% crude protein, and 28.17% nitrogen-free extract. The ash is composed chiefly of S and Mg and small amounts of Fe, Ca, K, silica, Na, P, and Cl. The carbohydrate distribution is as follows: 1.047% reducing sugars, 1.258% non-reducing sugars, 2.756% pentosans, 9.608% starch and 11.017% gums.

543.8:582.542

3. The chemical study of Lindenbergia philippinensis (Cham.)Benth. Asuncion Canicosa Quema. Journal of the Philippine Pharmaceutical Association, Sept. 1952, v.39, no.9, p.305-311.

The leaves of Lindenbergia philippinensis (Cham.) Benth., known in Igorot as "sabug", were collected from UST Botanical Garden; San Juan Church, Rizal; Calamba Church, Laguna; and Los Baños Agricultural College. Preliminary tests on the leaves indicated the presence of volatile oils, tannin, saponin, glucosides, resins, and alkaloids. The alkaloid was isolated by extracting the leaves with 95% alcohol. Tests revealed that the alkaloids belong to the tertiary and quaternary groups.

Reference is made to previous experiments conducted by Dr. Demetrio O. Nalagan (Dept. of Physiology, Faculty of Medicine and Surgery, UST) which proved that the drug is a cardiac depressant.

543.8:582.572.4

4. Chemical analysis of the bulbs of Crinum asiaticum Linn. var toxicarium fam. amaryllidaceae. Eden Pansacola Clemente. Manila, University of Santo Tomas, 1958. 66p. tables, photo. 29 refs.

The bulbs of Crinum asiaticum Linn., known in Tagalog as "bakong", has been used as an emetic by Hindu doctors and has been found a good substitute for "ipecac".

Preliminary analysis of its bulbs obtained from Cagbaleta Island, Mauban (Quezon) showed the presence of alkaloids, tannins, glucosides, saponins, bitter principles, proteins, fats, and carbohydrates. The proximate chemical composition of the powdered drug was: 12.75% moisture, 4.39% ash, 5.06% crude protein, 1.38% ether extract (crude fat), 7.96% crude fiber, and 68.44% non-nitrogenous extractive.

Extraction with different organic solvents gave varying percentages of extractives: dilute alcohol, 12.95%; water, 12.14%; petroleum benzine, 0.499%; non-volatile ether, 1.13%; and volatile ether, 0.298%.

Isolation of the alkaloid was best accomplished by extraction with 2% tartaric acid. Extraction with 95% alcohol also yielded good results; but basic extraction with chloroform and alcohol gave the least amount, both in the crude extract and in the crystalline product. The alkaloid was purified by precipitation with tannic acid and subsequent decomposition of the precipitate resulted in the formation of a white crystalline substance which was found to contain carbon, hydrogen, and nitrogen. Extraction with ether and benzine was found not effective.

A review of literature on Crinum asiaticum Linn. is presented covering the history, botanical description, constituents, medicinal properties, and uses.

543.8:582.582

5. Investigation of the corms of Musa errans (Blanco) Teodoro. Lydia Bunda Bidiones. Manila, University of Santo Tomas, 1955. 77p. tables. 17 refs. (Thesis. M.S. in Pharmacy)

The tannin content (11.08%) of the corms of Musa errans (Blanco) Teodoro, locally known as "butuan", explains its antiseptic properties. The sap is used as vulnerary and as a urethral injection in gonorrhea. Other constituents found were: 1.43% resinous principle; 56.08% carbohydrates of which 28.29% is hemicellulose, 8.5% starch, 6.78% pentosans, 3.69% gums, 8.625% crude fiber, 0.199% reducing sugars; and a small amount of gum. The moisture content was 9.97%, crude protein 9.75%, and ash 4.435% which consisted mostly of sodium, sulfur, and calcium and traces of magnesium, potassium, zinc, phosphorus, silica, iron, and chlorine.

Preliminary analysis of the corms indicated also the presence of saponins, fats and traces of alkaloids. The presence of non-reducing sugars and cyanophoric glycosides was not indicated.

543.8:582.584

6. A chemical study of the rhizomes of "bandera española" (Canna flaccida Salisb.). Dioscora Samson Padilla. Manila, University of Santo Tomas, 1953. 51p. tables. 19 refs. (Thesis. M.S. in Pharmacy)

Previous investigations of the medicinal properties of the rootstocks and rhizomes of "bandera española", Canna flaccida Salisb., which has been unofficially reported to have been used as a vaso-dilator, are reviewed.

Preliminary tests on two common varieties (yellow and red) indicated the presence of tannins, proteins, crude fiber and plenty of carbohydrates. Tests for alkaloids and glucosides gave negative results. Results of the proximate chemical analysis of the two varieties show that both contain plenty of carbohydrates such that they are good sources of starch. A large amount of crude fiber is present and crude protein is high, especially in the yellow variety (26.53%).

Extractives from different solvents gave a total of 20.11% with H_2O giving the highest percentage of extractives, followed by ethyl alcohol. Ether gave the least amount of extractives indicating that very little fat is present.

Tabulated results of the carbohydrate partition indicate that starch form more than 23% of the total carbohydrates in both varieties, followed by crude fiber and gums which occupy 13% of the total extractives. Other carbohydrates unaccounted for represent 14.99% in the red and 8.09% in the yellow varieties based on moisture-free sample.

Results of the nitrogen partition by the Hausmann method showed that the non-basic nitrogen form the greatest amount of nitrogenous proteins (3.7% in the yellow and 7.58% in the red varieties), based on the moisture-free sample. The non-protein nitrogen which is a measure of free amino acids is negligible.

543.8:582.621

7. The chemical analysis of "Agoho" (Casuarina equisetifolia Linn.) bark. Sister Celindis Lopez. Manila, University of Santo Tomas, 1957. 70p. (5p. unnumbered), tables, illus. 29 refs. (Thesis. M.S. in Pharmacy)

Qualitative analysis of "agoho", Casuarina equisetifolia Linn. bark revealed the presence of tannins, saponins, glucosides, cyanophoric glucosides, protein, alkaloids, organic acids, resins, and coloring matter. Microsublimation of the powdered bark failed to produce any crystalline sublimates. Qualitative analysis of the ash indicated the presence of silica, iron, calcium, manganese, sodium, potassium, magnesium, chloride, and phosphate and the absence of aluminum, bromides, iodides, nitrates, and sulfates.

Analyzed quantitatively, the bark of "agoho" was found to contain 10.14% moisture, 5.89% total ash, 16.76% crude fiber, 1.13% nitrogen, 7.20% crude protein, 11.09% tannin, and 0.63% reducing sugar.

Attempts to extract and isolate alkaloids failed to give results, possibly because the alkaloid reagents might have precipitated other plant constituents like protein, or the alkaloids are present in small quantity, or the process used was not the most appropriate method. However, extraction trials made show that alcohol is the best solvent for this drug giving 13.065% of extractions; 3.48% for water; 1.49% for ethyl acetate; 0.985% for ether; and 0.83% for petroleum ether; followed by ethyl acetate, ether, and petroleum ether. The alcohol extract indicated the presence of tannins, saponins, and reducing properties, whereas, the water extract contained saponin, reducing sugars and traces of tannin.

Analysis of the alcoholic extract of "agoho" indicated that the coloring matter is of the anthocyanin type, whereas for the presence of flavons the aqueous extract of the bark when tested gave negative results. 3 of the 6 coloring extracts used in dyeing cotton fibers, cottonized ramie, abaca fibers, and abaca fibers soaked in 5% NaOH, gave satisfactory dyeing properties.

543.8:582.635.3

8. A chemical investigation of the roots of Ficus pseudopalma Blanco. Zenaida C. Peralta. Manila, Centro Escolar University, 1956. 98p. tables, illus. 41 refs. (Thesis. M.S. in Pharmacy)

A review is presented of the previous reports on the chemical composition and medicinal uses of foreign and local species of Ficus pseudopalma Blanco, locally known as "niog-niogan". Its roots collected from Antipolo (Rizal) were found to contain a glycosidal principle which was isolated, purified and characterized. The glycosidal principle was found to contain 35.45% C, 11.58% H, and 52.97% O (by difference) by the semi-micro method. However, thorough purification could not be effected as the least percentage of ignition residue obtained was 39%, even after several trials. Other plant constituents found were tannins, resins, reducing substances, protein, carbohydrates and traces of alkaloids, organic acids, fats, oils and chrysophanic acid. The presence of saponins, cyanophoric and glycosides were not indicated.

The proximate chemical composition of the air-dried roots was: 8.81% moisture, 11.87% total ash, 4.40% ether extract, 35.03% crude fiber, 7.81% crude protein, 32.08% carbohydrates, 7.72% resin, and 1.85% tannin.

Extraction with selective organic solvents yielded a total of 21.41% extractives with H_2O giving the highest percentage (9.06%) representing glycosides and carbohydrates.

The separation and identification of organic acids showed the presence of small amounts of tartaric, citric, malic and succinic acids; test for oxalic acid was negative. The total acidity was determined to be 1.6 cc of N/10 NaOH/100 g sample.

543.8:582.635.3

9. A chemical study of "kalios" leaves (Streblus asper Lour.). Clarita Aragon Villanueva. Manila, Manila Central University, 1948. 42p. tables, illus. 12 refs. (Thesis. D.S. in Pharmacy)

The procedure followed for the determination of the chemical constituents of the leaves of Streblus asper Lour., commonly called "kalios", are described.

The leaves were found to contain tannins and traces of fatty oil, resins and reducing substances. Alkaloids, saponins, bitter principles and essential oils were not indicated. The appreciable amount of ash obtained contained mostly siliceous matter and alkaline earth metals.

However, these experimental findings have, so far, not indicated definitely to which particular group of chemical constituents the medicinal properties may be attributed, so much so that further biological and clinical studies would be of value.

A review of the literature on the plant is presented.

543.8:582.635.5

10. A chemical study of the leaves of ramie (Boehmeria nivea Linn.). Rosario S. Reyes y Lerma. Manila,

University of Santo Tomas, 1954. 71p. tables. 23 refs. (Thesis. M.S. in Pharmacy)

The leaves of ramie, Boehmeria nivea (Linn.) Gaudich., obtained from the Botanical Garden of UST (Manila) were found to contain 0.39% tannin and 3.24% resin and an excellent source of chlorophyll, which is now being used in various medicinal and toilet preparations. Determination of the chlorophyll and accompanying carotenoid content gave the following results: chlorophyll "a" 0.2146% and chlorophyll "b" 0.2342%, and carotin 0.8879% and xanthophyll 0.4853%, respectively.

The proximate chemical composition of the leaves was: moisture 11.40%, crude protein 15.88%, ash 20.32%, crude fiber 8.47%, ether extract 4.87%, and nitrogen-free extract 39.03%. Its ash content: SiO_2 16.549%, Fe_2O_3 2.376%, P_2O_5 2.006%, CaO 21.84%, MgO 6.95%, SO_3 1.571%, K_2O 1.955%, Na_2O 26.30%, and Cl 2.594%. The total nitrogenous matter was 2.49% and partitioned into: 0.393% acid amide, 0.388% humin N, 0.699% basic N, and 1.058% non-basic N. Small amounts of reducing sugar (0.038%) and non-reducing sugar (.0228%) were found.

A decoction of the root and leaves was used as a tonic in dysentery.

543.8:582.675.4

11. A study of the constituents of Tinomiscium philippinense Diels (Fam. Menispermaceæ). Swaeng Kuyaganont. Diliman, Rizal, University of the Philippines, 1956. 28p. tables, illus. 11 refs. (Thesis. M.S. in Pharmaceutical Chemistry)

The roots of Tinomiscium philippinense Diels was found to contain a crystalline principle which melted at 170°C. It was isolated by extraction with ether or alcohol. It dissolved in ether, alcohol, methanol, $CHCl_3$ and C_6H_6; but it did not dissolve in cold or hot water, dilute acids, and alkalies. Attempts to obtain its crystalline salts in a pure form were not successful.

The presence of alkaloid, tannins and saponins was also indicated, but no glucoside was obtained. The amount of phenolic tertiary base obtained was very small that further work could not be done.

543.8:582.678.1

12. The general chemical composition and the binding property of the leaves of Litsea glutinosa (Lour.) C.B. Rob. Josefina D. Opiana. Manila, Centro Escolar University, 1957. 87p. tables, illus. 24 refs. (Thesis. M.S. in Pharmacy)

The leaves of Litsea glutinosa (Lour.) C.B. Rob., locally known as "puso-puso", was found to contain tannin, reducing and non-reducing substances, carbohydrates, water-soluble proteins, alkaloids, resins, saponins, cyanophoric glycosides, and traces of essential oils.

The proximate chemical composition of the air-dried leaves was: 44.76% moisture, 1.38% fats and oils, 8.14% crude protein, 5.57% total ash, 18.18% crude fiber, and 21.97% carbohydrates (by difference). The tannin content was 0.82%. The result of the carbohydrate partition was: total reducing sugars 0.18%, starch 6.78%, furfural 9.36%, mucilage 5.66%. Successive extraction with solvents showed that H_2O gave the highest percentage of extractive, 7.19% followed by alcohol 6.62%, petroleum ether 4.78%, sulfuric-ether 2.21%, chloroform 1.76%, and ethyl acetate 1.46%.

The density of a 10% aqueous extract from fresh leaves at 33.3°C was 0.9890 g/ml and 0.9885 g/ml from air-dried leaves. The viscosity for the same solutions was 4.083 for fresh leaves and 3.998 for air-dried leaves. The results of the test for the binding property of the aqueous extract did not substantiate the fact that it makes a strong mortar. However, it was found that the mechanical strength of the clay test piece was increased when mixed with the extract.

543.8:582.678.1

13. A chemical study of avocado seeds. Priscilla S. Santos. Manila, Centro Escolar University, 1950. 45p. tables. illus. 28 refs. (Thesis. M.S. in Pharmacy)

A review is presented of the previous investigations on the medicinal properties and proximate chemical composition of the seeds of *Persea americana* Mill or avocado together with the history and botanical description of the plant.

Preliminary tests of local avocado seeds indicated the presence of tannin, saponin, fat enzymes, proteins, carbohydrates and traces of essential oils; tests for the presence of alkaloids and cyanophoric gave negative results. Quantitative determination of the composition of both fresh and moisture-free seeds revealed that the major constituent of the seed is carbohydrate, 77.67% (based on moisture-free sample). Its ash content is represented by 1.57% acid soluble and 0.79% acid insoluble.

Extraction with selective solvents like ether, chloroform, ethyl acetate, alcohol, and water gave a total of 40.66% extractives with alcohol extracting most of the tannin (19.39%) and ether extracting wax and fixed oil. The oil was found to have a saponification value of 28.5 and an iodine number of 66.1.

The carbohydrate distribution was also determined; starch was found present to the extent of 26.76%, gums 7.36%, and 0.69% soluble sugars. Results of the nitrogen partition showed that acid amide and non-basic nitrogen constitute the major portion of the protein found in the seeds. The water-soluble nitrogen, a measure of free-amino acids, was negligible (7% of the total nitrogen).

543.8:582.736

14. A chemical investigation of the leaves of Bauhinia malabarica Roxb. Reginita G. Borja. Manila, Centro Escolar University, 1955. 70p. tables, illus. 32 refs. (Thesis. M.S. in Pharmacy)

The results of the analysis of the leaves of *Bauhinia malabarica* Roxb., locally known as "alibangbang" collected from Camp O'Donnel (Tarlac) indicated that its medicinal properties are attributable to a number of organic constituents, chiefly, the resins, tannins, and organic acids. The results obtained were: 5.58% resin, 1.42% tannin (found to be of the catechol group), and total acidity determined as 1 g which is equivalent to 0.54 cc of 1 N NaOH. The acid content was rather small, consisting of oxalic, malic and traces of tartaric acids. Small amounts of oxalic and malic acid crystals were isolated. The alkaloids were of the tertiary non-phenolic group but were not isolated due to a small amount obtained. No saponins, essential oils,and cyanophoric glycosides were found.

Quantitative analysis of the leaves revealed that carbohydrates are its major constituent being 49.59%; 17.37% crude fiber, 14.25% moisture,9.99% ether extract (fats and oils), 5.74% total ash, and 3.05% crude protein. Extraction of the powdered leaves yielded a total of 36.26% of extractives with H_2O extracting 15.43%; C_2H_5OH, 10.39%; sulfuric-ether, 6.15%; petroleum ether, 3.84%; and ethyl acetate, 2.45%.

543.8:582.736

15. Chemical investigation of the leaves of "makahiya" (Mimosa pudica Linn.). Juanita Molina Guerrero. Manila, University of Santo Tomas, 1954. 57p. tables. 17 refs. (Thesis. M.S. in Pharmacy)

A review of literature on *Mimosa pudica* Linn., locally known as "makahiya", is given covering botanical description, uses, and previous studies. The leaves and roots mixed with milk is reported given in cases of piles and sore throat; it is also used as an emetic

The leaves of "makahiya" were found to contain 9.73% tannin which was determined to be of the catechol group, 2.83% resins, and 6.018% saponins. The saponin was best isolated by the methyl alcohol method than by the lead acetate and the magnesia methods. No alkaloids, volatile oils and cyanophoric glucosides were found.

The proximate chemical composition of the leaves was: 11.69% moisture, 4.72% ash, 8.249% crude fat, 9.502% crude fiber, 21.10% crude protein, and 44.73% nitrogen-free extractives. Analysis of the ash content was: 1.31% SiO_2, 2.85% Fe_3O_4, 10.32% CaO, 10.73% MgO, 2.2% Cl, 11.58% SO_3, 6.94% P_2O_5, 6.47% K_2O, and 16.93% Na_2O. The carbohydrate distribution was determined as: total reducing sugars 1.933%, gums 11%, pentosan 1.696%, and starch 0.1923%.

Successive extraction of the leaves gave a total of 44% extractives with H_2O giving the highest percentage 16.33%; followed by alcohol, 1491%; ethyl acetate, 5.48%; petroleum ether, 4.79%; and ether, 2.78%.

Using the neutral and acidic processes, the glutamic acid content of the air-dried samples and of the protein extract was determined. The neutral process yielded small amounts of crystals. The protein extracted at pH 8.5 from the yellow variety gave the biggest yield, 0.4515%. On the other hand, the hydrochloride failed to crystallize using the acidic process. The Rf value for the glutamic acid was determined to be 0.4583 by the circular paper chromatography (Whatman Paper No.1 12.25 cm. in dia.).

Observations made from the results of the investigations were: 1) that the oil obtainable from the alcohol used in the treatment of the seeds prior to protein extraction deserves further studies, regarding its components. Previous investigations revealed that this oil has similar properties to castor oil, hence, the laxative effect of mongo may be atrributed to its oil content; 2) since the Rf value of glutamic acid was established as a result of this research work, therefore mongo beans contain this amino acid which, at present, is rising an importance as a chemical in medical therapy; 3) improving the present processes of extracting glutamic acid, which are either time-consuming or unreliable on impure fractions, will establish mongo beans as primary sources of amino acid which is known as monosodium glutamate, a food seasoning.

543.8:582.736

16. A chemical investigation of the leaves of saga-saga (Abrus precatorius Linn.). Remedios M. Laygo. Journal of the Philippine Pharmaceutical Association, Aug. 15, 1950, v.37, no.8, p.333-337. 12 refs. (Paper read before the Scientific Section of the 1950 Annual Meeting and Convention of the Philippine Pharmaceutical Association held in Baguio City on May 19, 1950)

The leaves of "saga-saga", Abrus precatorius Linn., were collected from Gapan (Nueva Ecija), Sta. Isabel, Malolos (Bulacan), Sta. Cruz (Laguna) and Bauang (La Union). Qualitative tests of the powdered leaves revealed the presence of alkaloids, glucosides, and tannins. Tests for saponins and volatile oils were negative. The fresh leaves gave a moisture content of 68.68%, and 2.04% total ash of which 1.21% is water-soluble and 0.83% is acid-soluble ash. Successive extractions of the dried leaves with different solvents yielded a total of 42.66% extractives, with water giving the highest percentage of extractive.. The water extract contain, the soluble plant substances (organic acids, carbohydrates, tannins); alcohol, the alkaloids; ether, the chlorophyll; ethyl acetate, glycyrrhizin and resins; and $CHCl_3$, the waxes.

The modified method adopted for the separation of glycyrrhizin is described. About 9.61% glycyrrhizin was obtained which compares favorably with the 10% reportedly found in the leaves from India. The product was yellowish brown, amorphous powder with a sweet taste. It was found soluble in C_2H_5OH, H_2SO_4 and in hot H_2O, but scarcely soluble in cold H_2O. Its reaction is acidic.

The amount of abrine, a toxalbumin also found in the leaves, is negligible such that it does not affect its medicinal value.

543.8:582.736

17. Chemical study of the leaves of Cassia fistula and the processing of its fruit pulp as a laxative preparation. Edna T. Lim. Manila, Centro Escolar University, 1955. 86p. tables. 35 refs. (Thesis. M.S. in Pharmacy)

A review of the literature on golden shower, Cassia fistula, covering chemical composition, properties, and previous works on foreign species, is presented.

The leaves of golden shower, obtained from the Botanical Garden of CEU and Barili (Cebu) were found to contain a small amount of chrysophanic acid, which is undoubtedly the active principle responsible for its medicinal property. Of the 6 methods described for the isolation of chrysophanic acid, the modified Javelosa method gave fairly satisfactory results, although the yield was small and rather impure. Appreciable amounts of organic acids such as citric, malic, and succinic acids were also found. The total acid value obtained was 132.15 cc of N/10 alkali per 100 g sample of the 80% alcoholic extract. The resin obtained was 7.98% while that of tannin was insignificant. Other plant constituents present in the leaves were: water-soluble proteins, considerable amount of reducing sugars, and traces of alkaloids.

The proximate chemical composition of the leaves was: 18.28% moisture, 13.14% ether extract, 7.19% crude protein, 5.67% total ash, 18.65% crude fiber, and 37.07% carbohydrates. Water was the best solvent, extracting 12.46% extractives followed by sulfuric-ether and alcohol, extracting 10.94% and 6.67%, respectively.

Of the 21 formulas devised for the preparation of the fruit pulp as a laxative, the following gave satisfactory results: paraffin 5 g, pulp extract 3 g, industrial glucose 3 g, saccharin 0.02 g, and peppermint oil 1 ggt. The product obtained was smooth, elastic and of the right consistency. The best sugar-coating mixture was: gelatin powder 1 g, powdered gum acacia 1 g, sucrose 24 g, and H_2O 20 cc. It was observed that dextrose and sucrose caused grittiness which could not be remedied with glycerin and gums. However, glycerin improved the elasticity of the product but rendered it moist and sticky when exposed to air for sometime. Too much paraffin hardened the product, while too much pulp extract gave a soft product. As a whole, the coated laxative preparation is convenient to administer.

543.8:582.736

18. Protein hydrolytic products of mongo seeds (Phaseolus aureus Roxb.) with particular reference to glutamic acid. Tranquilina de Jesus Mariño. Manila, University of Santo Tomas, 1958. 65p. tables, illus. 18 refs. (Thesis. D.S. in Pharmacy)

Besides its use as foodstuff, mongo beans, Phaseolus aureus Roxb., are used variably as medicine. In India, the seeds are used both internally and externally in treating paralysis, rheumatism and affections of the nervous system; as tonic and as poultice for checking secretions of milk and reducing distension of mammary glands; powdered beans are rubbed into scarifications over tumors and abscesses to promote supuration. In Indo-China, it is prescribed for anorexia and is considered as antiscorbutic and diuretic.

Quantitative analysis of the 3 varieties (red, green, yellow) of mongo beans gave the following results: 1) red variety - 8.4%

moisture, 1.93% fats, 16.18% crude protein, 5.98% ash, 4.5% crude fiber, and 62.47% carbohydrate (by difference); 2) green variety - 7.55% moisture, 1.41% fats, 27.62% crude protien, 4.47% ash, 2.84% crude fiber, and 56.11% carbohydrate (by difference); and 3) yellow variety - 8.4% moisture, 1.83% fats, 27.93% crude protein, 2.82% ash, 2.42% crude fiber, and 54.60% carbohydrates (by difference).

Protein was best extracted from the 3 varieties at a pH value of 8.5 than at pH 7.5 and pH 8. Protein obtained at pH 8.5 contained higher percentage of nitrogen and consequently higher percentage of crude protein. The percentage of nitrogen and crude protein as determined respectively was: 5.2% and 33.12% (red variety); 7.3% and 45.9% (green variety); and 6% and 43.3% (yellow variety). Tabulated results of the nitrogen distribution show that, as a whole, the green variety has greater percentages of the corresponding nitrogen constituents namely: acid amide, humin, basic and non-basic nitrogens

543.8:582.736

19. Studies on the colorimetric determination of rotenone in derris roots. Pilar S. Mirasol. Manila, University of Santo Tomas, 1941. 60p. tables. 57 refs. (Thesis. M.S. in Pharmacy)

The colorimetric method adopted for the quantitative determination of rotenone in derris roots locally known as "tuba", is similar to that of Rogers and Calamari except that the solution was allowed to stand for 6 hours (at room temperature) before comparison with the standard. A lapse of 6 hours was needed for the solution to assume a red color since before then, the unknown had a higher reading, thus, a lower concentration. On the other hand, after 6½ hours, the results obtained were erroneous and the percentage of rotenone was lower. The solutions were diluted to a definite volume before matching the colors to prevent, as much as possible, error due to loss of solvent acetone and so that the colors were not too deep for matching purposes. The standard is best placed between 20-30 mm distance; below 15 mm, matching is impossible and at 40 mm the color is too deep for matching. Tabulated results show that determinations by the colorimetric are lower than by the gravimetric method.

543.8:582.736

20. Proximate chemical composition and nitrogen partition of soya bean seeds from several strains of plants grown in the Philippines. Maria Luisa Ong. Manila, University of Santo Tomas, 1959. 78p. tables, illus. 31 refs. (Thesis. D.S. in Pharmacy)

The seeds of 12 different varieties of soya bean grown in the Philippines were studied, namely: Adadian, Bilofield, Bilomi 1, Bilomi 3, E.G. 1, E.G. 2, Hybrid 2217, Improved Pelican, Manchurian Black, Mis 28, E.B., Mis Dixi 33, and Yellow Biloxi. Except for Manchurian Black and Mis Dixi 33 which were obtained from the Bureau of Plant Industry (Manila), all were obtained from the Economic Garden, Los Baños (Laguna).

Tabulated results of the study reveal that the chief constituents of the soya bean seeds are protein, oil, carbohydrates and minerals. It was observed that the average percentages of crude fat, crude protein, total ash, crude protein, crude fiber, total ash and nitrogen-free extract (carbohydrates) vary from one variety to another. Based on moisture-free samples, the percentage range of crude fat is from 18.11% (Mis Dixi 33) to 24.92% (Bilomi 1); crude protein is from 35.4% (Bilomi 1) to 54.09% (Mis 28 E.B.); ash 5.692% (E.G.) to 6.713% (Bilomi 3); crude fiber 2.559% (Bilomi 3) to 6.982% (Hybrid 2217); and carbohydrates from 15.48% (E.G. 2) to 30.18%

(Bilomi 1). It was noted then that while a variety is rich in one constituent, it does not necessarily follow that the same is rich in other plant principles.

Results of the nitrogen distribution by the Hausmann's method indicate that there is a considerable decided difference in the amount of nitrogen in the 4 fractions (hydrolytic products of protein) which are acid amide, humin, basic and non-basic nitrogen. Like most seeds, the non-basic nitrogen make up the major bulk of the nitrogen constituent. The various tables show the distribution of the nitrogen constituents in the 12 seed varieties. Based on the total nitrogen of the different samples after hydrolysis, the percentage of acid amide range from 1.65% (E.G. 3) to 13.48% (Bilomi 1); humin 1.008% (Improved Pelican) to 14.30% (Mis Dixi 33); basic 16.29% (E.G. 2) to 30.41% (E.G.1); non-basic 52.5% (Mis Dixi 33) to 79.79% (E.G. 2).

Attempts to isolate the glutamic acid from Mis Dixi 33 and Manchurian Black were made by hydrolysis of the samples and precipitation with an acid at pH 3.2 from the decolorized hydrolysate. A small amount of crystal was obtained.

543.8:582.736

21. A chemical investigation of the bark of Albizzia saponaria (Lour.) Blume (salinkogi). Lourdes C. Suarez. Manila, Centro Escolar University, 1959. 95p. tables, illus. 13 refs. (Thesis. M.S. in Pharmacy)

Albizzia saponaria, known in Tagalog as "salinkogi", is a saponaceous plant which reportedly is used as a diuretic, alterative, and heart stimulant and for washing hair since it contains saponin. Since saponaceous plants are recognized as intermediate materials in the synthesis of cortisone, experiments were made to isolate this principle. A list of Philippine plants containing saponin is given.

Powdered dried bark of "salinkogi" collected from Janiway (Iloilo) in November 1957 and January 1958 was investigated and preliminary tests revealed the presence of tannin, resin, alkaloid, reducing substances, traces of soluble protein, carbohydrates and saponin; the presence of cyanophoric glycoside and chrysophanic acid was not indicated. Quantitative determination gave the following results: 7.99% moisture, 9.97% total ash, 0.86% ether extract, 54.60% crude fiber, 5.15% crude protein, and 21.43% carbohydrates (by difference). Crude resin was determined as 3.14% and the total acidity was found to be 2.45 expressed as volume (cc) of 0.1526N NaOH per 100 g sample. Successive extraction with selective solvents showed that water gave the highest percentage (3.55%) of extractive, followed by C_2H_5OH (1.5%); petroleum ether, sulfuric ether, ethyl acetate, and chloroform gave relatively small yields (77%, 0.51%, 0.67%, and 0.13% respectively).

Of the 10 methods tried for isolating saponin, the methyl alcohol method gave the best product and high percentage yield. 25 g of powdered bark yielded about 10-11% crude saponin, which was light in color in contrast with those obtained by other methods; it caused sneezing when inhaled. It was found that the active principle is concentrated in the white portion of the bark (endodermis) and that CH_3OH yielded a higher percentage (9.26%) than H_2O (8.94%). Quantitative determination of the saponin content gave an average result of 5.37% by the baryta method.

Purification was done by repeating the exact procedure for their isolation until a light colored product was obtained. The lead acetate method was tried in this experiment but attempts to isolate the principle in crystalline form failed. The methyl alcohol method was also used by treating the product with a little activated charcoal until a yellow mass was

The proximate chemical composition of the semi-dried latex was found to be 36.85% water soluble extract, 56.89% petroleum ether extract, 5.21% acetone extract, and 1.04% alcohol extract.

"Golondrina" has been used to combat dyspnea of asthmatic patients; it is considered a haemostatic, sedative and soporific; it has a depressant action on the heart and respiration and produces a relaxation of the bronchioles.

543.8:582.765.2

24. Phytochemical study of mango seeds (Mangifera indica Linn.). Felipe M. Carreon. Journal of the Philippine Pharmaceutical Association, June 15, 1947, v.34, no.6, p.211-217. tables. 29 refs. (Part of the thesis submitted to the Graduate School of the University of Santo Tomas, Manila in partial fulfillment of the requirements for the degree of Doctor of Pharmacy. Paper read at the annual meeting of the Philippine Pharmaceutical Association held in Manila on Dec. 8, 1946)

Review of the literature on mango, *Mangifera indica* Linn., revealed that the seeds possess medicinal properties. Its kernel is used as an anthelmintic and is administered in cases of bleeding piles, menorrhagia, dysentery, and diarrhea.

Preliminary analysis of the seeds of the mature variety, known locally as "carabao", gave negative results to tests for alkaloids, glucosides, saponins, and volatile oils. However, it was indicated that the seeds are rich in fatty substances, carbohydrates, tannin, and gallic acid. The tannin obtained was determined to be of the pyrogallol group and was found to contain 52.2% carbon. It was observed that unripe seeds contain more tannin than ripe ones; the percentage obtained varying from 14.69% to 9.73%. The fixed oil extracted gave a higher acid number (40.68) and saponification number (203) but lower iodide value than previously reported. The composition was determined to be: 11.62% moisture, 2.19% ash, 9.47% fat, 6.63% protein, 1.33% reducing sugars, 1.75% crude fiber, and 67.01% other carbohydrates. The ash was found to contain appreciable amounts of magnesium (14.25%) phosphorus (19.91%), and calcium (6.73%), and traces of sulfur, iron, aluminum, and silicon.

A yellow-brown microcrystalline substance, isolated from the ether extract which melted between 242-249°C, burned out completely. It was found insoluble in alcohol, ether, and water. Its identification could not be effected due to the small amount obtained.

543.8:582.782

25. A study on the constituents of the leaves and bark of the Zizyphus jujuba (L.) Lam. Lolita L. Austria. Diliman, Rizal, University of the Philippines, 1953. 37p. tables. 28 refs. (Thesis. B.S. in Chemistry)

The bark and leaves of *Zizyphus jujuba*, "mansanitas", obtained from Caloocan (Rizal) were studied. The bark was found to contain tannin, glucosides, alkaloids, saponins, ash, and nitrogen. The leaves contain alkaloids, nitrogen, and ash; no tannin, glucosides and saponins were found. The bark gave a higher ash content than the leaves while the leaves gave a higher alkaloid and nitrogen contents than the bark.

Its medicinal value is believed to be due to the saponin content. In the Philippines, a decoction of the bark and leaves is used as an astringent in cases of dysentery and diarrhea. The bark alone is used as an ametic in larger doses.

543.8:582.796

26. Chemical investigation of the leaves of Hibiscus rosa sinensis Linn. Jesusa Job. Manila, Centro Escolar University, 1956. 75p. tables. 23 refs. (Thesis. M.S. in Pharmacy)

The green mature leaves of "gumamela", *Hibiscus rosa sinensis* obtained, but this too did not succeed in forming crystals.

543.8:582.751.9

22. Phytochemical study of Clausena anisum-olens (Blanco) Merrill. Isabel Garcia-Reyes and Patrocinio Valenzuela. Journal of the Philippine Pharmaceutical Association, April 15, 1949, v.36, no.4, p.161-173. tables. 33 refs. (Part of a dissertation submitted in 1938 by Isabel Garcia-Reyes in partial fulfillment of the requirements for the degree of M.S. in Pharmacy, CEU)

The leaves of *Clausena anisum-olens* (Blanco) Merr., known in Tagalog as "galumpit" or "wampit", were collected from the "kayumanis" trees grown in Tanay (Rizal) and Arayat (Pampanga) in 1935 and 1936, respectively. Preliminary analysis of the aqueous leaf extracts indicated the presence of tannin and saponin but the absence of alkaloid. Moisture contents of both partly dried and dried leaves, as determined by the Xylene method, were 56.4% and 13.7% respectively. Using the USP XI method for the determination of the ash content, the following results were obtained: 3.99% acid-soluble and 0.56% acid-insoluble. The volatile oil was obtained by steam distillation of the leaves with the aid of Lloyd's extractor and concentrator at ordinary pressure and of the ordinary laboratory method. The different portions of the leaves yielded about 1.003%-2.030%. The oil was found to contain aldehydes or ketones; anethol but no phenols or acids; and was found soluble in 70% alcohol and sparingly soluble in water. The following constants were determined:acid number 1.0809-2.2311, ester number 3.2689-4.3082 (before acetylation) and 5.3485-25.1461 (after acetylation), N_D(30°C) 1.5175-1.5177, A_D (30°C) inactive; and $d_{30/30}$ 0.9597-0.96391. The average methoxyl content of the oil was determined to be 19.46% by the micro Zeisel-Pregl method. Fractionation of the oil at ordinary pressure gave 5 fractions at temperatures between 210-220°C. Fractions B and C, obtained between 214-216°C and 216-218°C respectively, agreed closely with methyl chavicol and was then oxidized to anisic acid using the modified Ladenburg's method. 6.9853 g of anisic acid was obtained which melted at 179-183°C and gave a methoxyl content of 20.54%. It compared closely with that obtained from anise oil.

The narcotic effect of the oil from *Clausena anisum-olens* were compared with that of anise oil, staranise oil and fennel oil (all 3 obtained from Botica Boie). A dose of 0.1 cc of a 10% alcoholic solution of oil from *Clausena anisum-olens* produced narcosis on frogs for 10-19 min. while no such effect was observed with the other oils and with alcohol alone. The oil of anise produced narcosis at a dose of 0.22 cc, staranise at 0.25 cc and fennel at 0.30 cc. Tabulated results show that *Clausena anisum-olens* is twice as strong as anise, 2½ times as strong as staranise and 3 times as strong as fennel oil.

543.8:582.757.2

23. A chemical study of golondrina (Euphorbia hirta Linn.). Magdalena A. Espino. Manila, University of Santo Tomas, 1951. 49p. illus. 22 refs. (Thesis. M.S. in Pharmacy)

A systematic analysis of the leaves, stems and flowering tops of *Euphorbia hirta* Linn., known as "golondrina" or in Tagalog as "butobutonisan", showed that the plant contains fixed oil, plenty of chlorophyll and tannin, resins, gallic acid, quercitin, waxes, euphorbon, caoutchouc-like principle and reducing sugars. The tannin was found to be of the catechol group. Alkaloids and cyanophoric glucosides were not found.

Successive extractions of the air-dried and powdered material with selective organic solvents gave a total of 29.60% extractives with ether extracting 3.75%, chloroform 0.93%, ethyl acetate 1.8%, alcohol 7.81%, and water 15.34%.

Linn., collected from Balasan (Iloilo), were found to contain sugars, tannin and mucilage, but no alkaloids, cyanogenetic glucosides, resins, saponins and essential oil. The tannin content, 1.33%,was insignificant compared to mucilage content, 3.60%. The mucilage was obtained from the chlorophyll-free material by the Hirst-Percival-Wylam method. The crude mucilage was light gray but darkened upon exposure to the atmosphere. It gave positive results to tests for reducing sugars and pentoses. The osazone formation test yielded yellow crystals with a melting point of 225°C. The mucic acid tests for galactose yielded crystals with melting points ranging from 100-130°C. The cadmium-bromo xylonate or xylose gave prismatic needle-like crystals. Test for rhamnose also gave positive results.

The proximate chemical composition of the leaves was: 19.44% crude protein, 5.94% fat, 12.48% crude fiber, 15.51% total ash, and 46.63% carbohydrates (by difference). The carbohydrates consist of 54% polysaccharides(of which 8.85% is pentosans), 12.4% crude fiber, dextrin and starches. The reducing and non-reducing sugars were present to the extent of 0.63% and 9.88%, respectively. The protein consists of 2.39% non-basic amino acids (equivalent to 14.94% protein), of which 6.82% was H_2O-soluble protein, and only 0.02% basic N equivalent to 0.13% protein.

543.8:582.797

27. A chemical study of the bark of "kapok" (Ceiba pentandra L. Gaertn). Corazon R. Generalao. Manila, University of Santo Tomas, 1955. 73p. tables. 21 refs. (Thesis. M.S. in Pharmacy)

A review of the literature on Ceiba pentandra L. Gaertn., covering botanical description, composition, uses, and previous reports is presented. The plant locally known as "kapok" has medicinal values. In India, its root is used as treatment for chronic dysentery, diarrhea, ascites, anasarca, gonorrhea; its flowers for constipation and its bark is used as diuretic, astringent and as an emetic.

Preliminary analysis of the bark obtained from Manticao (Misamis Oriental) revealed the presence of oxidizing enzymes, gums, sugars, protein, and traces of fats. Tests for cyanophoric glucoside, volatile oil and alkaloids gave negative results. The bark was also found to contain 3.17% tannin and was determined to be a catechol. The resinous principles obtained was 3.11% and saponin was 3.38%. The magnesia, lead acetate, and methyl alcohol methods of isolating saponin were employed. Each method gave a different yield and quality of product.

Quantitative determination of the composition of the bark gave: 11.38% moisture, 4.60% total ash, 0.30% crude protein, and 34.53% nitrogen-free extractive. The analysis of its ash content gave the following results: 4.10% silica, 7.65%, iron, 3.74% Al, 39.05% Ca, 2.70% Mg, 5.64% Na, 5.95% K, 10.12% P, 5.80% S, and 3.92% Cl.

The carbohydrate content of the bark is partitioned as follows: 1.362% total reducing sugar, 10.12% pentosan, 10.545% starch, and 6.28% gums.

Extraction of the moisture-free sample gave a total of 19.7% extractives with H_2O extracting 10.11%, alcohol 6.87%, ethyl acetate 1.57%, ether 0.72%, and petroleum 0.45%.

543.8:582.843

28. Phytochemical study on the leaves of Carica papaya L. Lilly Gomez and Nenita C. Riguera. Journal of the Philippine Pharmaceutical Association, Feb. 15, 1958, v.45, no.2, p.27-34. tables. 24 refs. (Based on the Bachelor's Thesis "The Phytochemical Study on the leaves of Carica papaya L.", UP, 1956. Paper read during the Scientific Session of the 1957 annual meeting and Convention of the Philippine

Pharmaceutical Association, held in Iloilo City, April 11-14, 1957)

Preliminary tests of the leaf extract of a local species of Carica papaya L. (hermaphrodite type about 1-year old), revealed the presence of acids, tannins, phenolic substances, proteins, carbohydrates, saponins, alkaloids, reducing substances, ketose, fructose and glucose. Tests for the presence of glucosides, rhamnose, pentoses, colloidal substances and emulsifying agents gave negative results.

A comparatively high yield of alkaloid (0.170%) was obtained by extracting the leaves with methanol. The alkaloidal gum was found soluble in chloroform, absolute methanol, 95% ethyl alcohol, amyl alcohol, acetone, and benzene but insoluble in water, petroleum ether, and ether. It gave a melting point ranging from 80°-90°C, and on crystallization, it melted at 105°C. Further purification could not be effected due to insufficient amounts of isolated material. The picrate of the alkaloidal gum obtained melted at 120.9°C.

543.8:582.883

29. A chemical study of the seeds of duhat (Eugenia jambolana Lamarck) Consuelo Rodriguez-Belmonte. Journal of the Philippine Pharmaceutical Association, Dec. 15, 1948, v.35, no.12, p.567-584. tables, illus. (Part of the dissertation submitted in 1935 in partial fulfillment of the requirements for the degree of Doctor of Pharmacy in the Faculty of Pharmacy, UST)

The materials used were obtained from Sta. Maria (Bulacan) and Manila. Preliminary analysis of the seeds indicated the presence of glucosides, saponin, tannin and the probable presence of alkaloids. The proximate composition of the dried seeds was: 5.86% protein, 2.20% ash, 2.15% crude fiber, 6.24% moisture, 1.10% fat, and 82.21% carbohydrates (by difference). The results compared favorably with that obtained from foreign seeds.

Some important plant constituents were isolated. 0.086% volatile oil was obtained which dissolved in ether, chloroform, alcohol and other organic solvents. It gave a sp. gr. of 0.9450 at 27°C and an index of refraction of 1.4860 at 29oC. Gallic acid was also isolated and gave a melting point of 232°C. 8% tannin was obtained, but attempts to isolate glucoside were unsuccessful.

"Duhat", Eugenia jambolana, Lamarck, has many therapeutic uses; its seeds which reportedly contain anti-mellin has been used as a remedy for diabetes; the bark as an astringent and gargle; the juices of the fruit and leaves as remedies for diarrhea and dysentery; and the roots as astringent.

543.8:582.893

30. A chemical study of takip-kohol (Hydrocotyle asiatica Linn.) Jesusa P. Galang. Manila, University of Santo Tomas, 1952. 52p. tables, illus. 19 refs. (Thesis. M.S. in Pharmacy) Published in the Journal of the Philippine Pharmaceutical Association, Oct. 1953, v.40, no.10, p.349-354)

A review of the literature on the medicinal properties and chemical composition of "takip-kohol", Hydrocotyle asiatica Linn. or Centella asiatica (Linn.) Urban, is presented together with the description of the genus Hydrocotyle and 5 known Philippine species.

Successive extraction trials made on powdered air-dried stem and leaves of "takip-kohol" gave an average per cent of extracts equal to: water, 10.107%; alcohol, 7.282%; petroleum ether, 2.453%; ether, 1.563%; ethyl acetate, 0.546%; and chloroform, 0.349%. However, extractions from dried powdered roots showed petroleum ether as the best solvent, followed by ethyl acetate, chloroform, ether and alcohol, respectively.

Alkaloids and cyanophoric glucosides were found absent in "takip-kohol". Only a trace of tannin was present which belong to the catechol group. Reducing and non-reducing sugars were present. Traces of essential oils were found in the leaves and stems of the plant. Proximate chemical composition of the air-dried leaves was: 4.920% H_2O, 1.356% ether extract (mostly chlorophyll), 15.08% protein, 8.03% resin, 10.50% total ash, 9.334% crude fibers, 4.266% reducing sugars, 2.108% non-reducing sugars, 44.398% other carbohydrates.

Resins from dried leaves was extracted successively with different solvents. Ether was found the best solvent, followed by petroleum ether, chloroform, alcohol, and ethyl acetate.

The average ash content was 10.5% and was found to contain appreciable amounts of alkali and alkaline salts, aluminum, iron compounds, silica and phosphates.

The extract of the dried roots showed the presence of oil globules. Various shapes of crystals in the water extractive and in the subsequent successive crystallization with alcohol, acetone, ether, chloroform, and ethyl acetate were detected under the microscope some of which were rosette-like, square, triangular, and needle-like. Photomicrograph of crystals obtained from water extract and alcohol extract are presented.

543.8:582.937

31. Comparative study of the glycosidal content of Nerium. Luz Ll. Cosme and Joaquin Marañon. Journal of the Philippine Pharmaceutical Association, June 15, 1951, v.38, no.6, p.161-163. table. 7 refs. (Paper read at the scientific meeting of the 1951 annual meeting and national convention of the Philippine Pharmaceutical Association held in Davao City on April 23, 1951)

The glycosidal oleandrin of Nerium oleander L. "adelfa" was extracted from the leaves and stems of the 3 varieties (white, light pink, deep rose pink) by maceration with 65% alcohol and then determined by the Knudson and Dresbach colorimetric method using $K_2Cr_2O_7$ as standard solution.

Tabulated results show that the leaves of the light pink "adelfa" contain higher amount of glycoside oleandrin than the white and deep rose pink varieties, whereas, the stems of the white "adelfa" contain more glycoside than the other two varieties.

543.8:582.937 615.5

32. Chemical and pharmacodynamic investigation on Strophanthus letei Merrill. A. H. Wells and Faustino Garcia. Philippine Journal of Science, Jan. 1925, v.26, no.1, p.9-19. tables, plates. 2 refs.

About 2.1% and 0.9% saponin was obtained from the bark of the roots and stems, respectively of Strophanthus letei. The saponin was obtained in the form of an amorphous brown powder by extracting with water and was purified by the lead acetate method combined with repeated precipitations with ether.

The effects of different doses of amorphous powder given parenterally were studied. In frogs, the heart beat slowed down, the tone was markedly increased, and the heart contraction was augmented. Solutions of the powder with strengths of from 0.6% and above produced hemolytic effects. In dogs, the blood pressure was raised, and the depth and rate of respiration were increased with larger doses.

The toxic effects in cats and dogs were identical, whether given intramuscularly or intravenously. The symptoms observed were salivation, rapid respiration, and slowing of pulse rate. Given orally, the drug produced emesis. The minimum lethal dose for cats was determined to be 2 mg/kg weight, thus its strength is 1/20 of that of Ouabain.

543.8:582.938

33. A general survey of the chemical constituents of "kapal-kapal" leaves (Calotropis gigantea Linn. Dryand). Constancia Avendaño Santos Manila, University of Santo Tomas, 1956, 90p. tables, illus. 22 refs. (Thesis. M.S. in Pharmacy)

The botanical description and medicinal properties of "kapal-kapal", Calotropis gigantea (Linn.) Dryand are discussed. The leaves of "kapal-kapal" are reportedly used for poulticing sores and its decoction with the flower is used as a stimulant.

Analysis of the leaves collected from Tenejeros (Rizal), revealed the presence of acids, acid salts, phenolic substances and traces of tannins, proteins, gums, saponins, and alkaloids. No cyanophoric glycosides was obtained. The alcoholic extract of the leaves yielded 12.18% resinous principle similar to rosin. The mature leaves were found to contain 0.88% tannin.

Quantitative analysis of the leaves gave the following results: 11.55% moisture, 18.03% ash, 8.69% ether-soluble extract, 13.60% crude fiber 19.91% crude protein, 28.22% nitrogen-free extract. Its ash content is mostly sodium and calcium, and small amounts of silica, iron, sulfur, magnesium, potassium, phosphorus, and chlorine. The carbohydrate distribution in the leaves is as follows: 30.23% gums and allied principle; 7.24% pentosans; 2.33% starch; 1.01% reducing sugars. The nitrogen distribution is: 1.37% non-basic N; 0.799% basic N, 0.586% acid amide N, and 0.425% humin N.

Selective organic solvents gave a total of 57.04% extractives, with H_2O and C_2H_5OH yielding 27.50% and 12.34%, respectively. Petroleum ether, ether, and ethyl acetate gave relatively small percentages of extractives.

543.8:582.942

34. A general survey of the chemical composition of "Tonkin" seeds (Calonyction muricatum Linn.). Norma C. Villanueva. Journal of the Philippine Pharmaceutical Association, June 15, 1954, v.41, no.6, p.231-236. tables. 5 refs.

"Tonkin" seeds were found to contain quaternary and tertiary alkaloids, catechol tannins, fixed oils, sugars, saponins, proteins, resinous principles, and glucosides. No cyanophoric glucosides were found. The tannin and resin principles were determined to be 11.72% and 1.8755%, respectively. The proximate chemical composition of the powdered seeds are: 8.08% moisture, 4.380% ash, 17.71% crude fat, 9.92% crude fiber, 39.709% crude protein, and 20.192% nitrogen-free extractives. The ash content was mostly S, Mg, Ca, Na, and P; small amounts of SiO_2 and Fe, and traces of Mn.

The carbohydrate partition gave the following results: 9.92% crude fiber, 7.34% starch, 7.25% gums, 5.12% pentosans, 0.15% reducing sugar, and 0.84% non-reducing sugar. The nitrogen partition in the seeds gave large amount of non-basic nitrogen in the protein hydrolyzate.

Ether was found the best solvent giving 17.59% extractives composed mostly of fixed oil.

543.8:582.948.2

35. A chemical study of the leaves of "higad-higaran" (Heliotropium indicum L.). Guillermina Abanilla Aligada. Manila, University of Santo Tomas, 1954. 59p. tables. 20 refs. (Thesis. M.S. in Pharmacy)

The leaves of "higad-higaran", Heliotropium indicum Linn., are used as an emollient, diuretic, resolvent for abscesses and furuncles, and as a remedy for urticaria. Analysis of its leaves, collected from the environs of Quezon City, revealed the presence of resinous principles, tannins, proteins, sugars, alkaloids, cyanophoric glucosides, hydrocyanic acid, and traces of volatile oil. Saponins were not indicated. The alkaloid was isolated and was found to be non-phenolic tertiary base. The iodide of the quaternary alkaloids also gave positive results. The average proximate chemical composition was determined as follows: 12.13% moisture, 16.06% ash, 0.35% crude fiber, 19.90% crude protein, 6.98% crude fat, and 44.58% nitrogen-free extractives. Its ash content is composed mostly of calcium and silica, and traces of iron, magnesium manganese, sulfur, potassium, sodium, phosphorus, and chlorine. Successive extractions with organic solvents gave a total of 33.03% extractives with water giving the highest percentage, 15.59%; followed by alcohol, 9.29%; petroleum ether, 4.66%; and ether 2.61%.

543.8:582.949.1

36. A chemical study of the stem of Lantana camara Linn. Fernanda de la Cueva. Manila, Centro Escolar University, 1951, 52p. illus. 28 refs. (Thesis. M.S. in Pharmacy)

A review is given of previous reports on Lantana camara Linn. known in Tagalog as "kantutai" covering its history, botanical description and active principle (lantanine) which possess an antiperiodic property and is a possible substitute for quinine.

The stem of "kantutai" obtained from Alaminos (Pangasinan) was analyzed chemically and was found to contain alkaloids, resins, tannins, coloring matter, and volatile oil. No saponins and glycoside were found.

Its composition was found to be: 15.93% moisture, 3.82% ash, 0.69% insoluble ash, 3.13% soluble ash, and 22.609% crude fiber.

Successive extraction with selective solvents gave a total percentage of extractives of 4.466%, with H_2O giving the highest amount of extractive (1.545%), followed by alcohol, chloroform, ethyl acetate, ether and petroleum ether.

Very little volatile oil was isolated from the stem which gave a refractive index of 1.3558 (Abbe refractometer) and a sage-like odor. No further test was conducted on the small amount of alkaloid (0.007%) which was tertiary in character.

543.8:582.982

37. A chemical investigation of watermelon seeds (Citrullus vulgaris Schrad.) with particular reference to the saponin content. Concepcion Consunji-Aranda. Manila, Centro Escolar University, 1951. 57p. tables. 36 refs. (Thesis. M.S. in Pharmacy)

The proximate chemical composition of the kernel of the dried seeds of watermelon was determined to be: 8.27% moisture, 35.37% fat, 6.52% crude protein, 5.10% ash, 1.32% crude fiber, and 43.62% carbohydrates. No alkaloids, cyanophoric glycosides, and volatile oils were found. Successive extraction of the shelled seeds with selective solvents gave a total of 50.05% extractives, with ether giving the highest yield, 35.27%. The oil obtained from the shelled seeds gave the following constants: 0.9151 sp. gr. at 15°C, 1.4710 refractive index, 111.8 iodine value, 6.8 acid value, and 186 saponification value.

The method adopted for the isolation of saponin consisted of extracting the air-dried seeds with methyl alcohol and dissolving the concentrated extract in water. A current of air was then passed through the aqueous solution and the foam collected was dialyzed. The saponin was recovered by precipitating it with ether.

543.8:582.998

38. A chemical investigation of "tinta-tinta" (Eclipta alba (Linn.) Hassk. Angelita Aguila Ecarma. Journal of the Philippine Pharmaceutical Association, Jan. 15, 1958, v.45, no.1, p.3-6. 13 refs. (Part of a dissertation submitted by Angelita Aguila Ecarma to the Graduate School, UST, in partial fulfillment of the requirements for the degree of M.S. in Pharmacy, June 1956. Read at the Scientific Meeting of the 1957 Annual Meeting and National Convention of the Philippine Pharmaceutical Association held in Iloilo City)

A review was made of the

previous investigations on *Eclipta alba* (Linn.) known as "tinta-tinta" which is reputed for its many medicinal values. Preliminary chemical analysis of the powdered whole plant (except the roots) indicated the presence of tannins, saponins, proteins, resins, sugars, glucosides, and traces of alkaloids; cyanophoric glycosides and fats were not indicated. The materials were obtained along the bank of canals in Manila and Quezon City. The proximate chemical analysis gave the following results: 10.498% moisture, 14.632% ash, 4.606% ether extract, 10.956% crude fiber, 28.198% crude protein, and 31.111% nitrogen-free extractive. The ash content revealed large amounts of sodium and calcium and a small amount of zinc. Successive extraction with selective solvents gave the following results: 1.630% petroleum ether, 2.482% sulfuric-ether, 0.776% chloroform, 4.160% acetone, 12.518% alcohol, 0.164% ethyl acetate, and 17.122% water.

The Haussmann's method for the nitrogen partition of protein hydrolyzate gave the following results: 0.124% acid amide nitrogen, 0.119% humin nitrogen, 0.248% basic nitrogen, and 3.928% non-basic nitrogen. Quantitative determination of resin gave 3.095% and 1.791% tannin. Extraction of tannin was best carried out by the Pelouze method.

543.9:582.835

39. Biological assay of annatto (Bixa-orellana) for vitamin A activity. P. I. de Jesus and R. Lim. Acta Medica Philippina, Oct.-Dec. 1948, v.5, no.2, p.29-36. tables. 3 refs.

About 500 g of annatto seeds, Bixa-orellana (Linn.), commonly known in Tagalog as "achuete", were extracted with petroleum. Only 2.12% or 10.6 g oily residue, as compared with the standard reference cod liver oil, was obtained. Biological assay of the crude petroleum-ether extract of "achuete" revealed that it contains 1300 I.U. of vitamin A activity per gram, which indicates that it is not a rich source of vitamin A since one gram of the oil extract is equivalent to about 50 g of annatto seeds. Likewise, when the water-soluble extract concentrate of the annatto was assayed on rats (given vitamin-free diet) for vitamin A activity, by the therapeutic and preventive methods, the rats did not response to it, showing that annatto is not a rich source of vitamin A. Thus, food coloring with this extract will not increase its vitamin A content.

Tests for the presence of carotene in the crude oil extract by isolating this pigment by the phase separation method proved to be negative.

544.61:612.015.6:615

40. Spectrophotometric assay of vitamin B_1 and B_2 in pharmaceuticals. Josefina Tan C. Torres. Manila, University of Santo Tomas, 1955. 60p. tables. illus. 43 refs. (Thesis. M.S. in Chemistry)

The application of the Beckman Quartz Spectrophotometer Model Du, Fluorescence Accessory Set to the rapid determination of thiamine, and riboflavin in pharmaceuticals is described. Several pharmaceutical preparations like tablets, solutions, and injectables were assayed for their thiamine and riboflavin contents.

Referring to the standard curves prepared from the USP reference standards, the concentration of thiamine and riboflavin in the samples were determined. Results obtained by this method were found accurate and reproducible under routine conditions.

576.8:615.32

41. Screening of Philippine higher plants for antibacterial substances. Victoria A. Masilungan, Joaquin Marañon , Vicenta V. Valencia, Natividad C. Diokno, and Paciencia de Leon. Philippine Journal of Science, Sept. 1955, v.84, no.3, p.275-301. tables, plates. 18 refs.

329 species from 95 families were tested against Micrococcus

aureus Zopf. and *Escherichia coli* (Migula) Castellani and Chalmers. The antibacterial substances were extracted separately with 95% C_2H_5OH and with distilled H_2O, resulting in a total of 802 extracts (401 alcoholic and 401 aqueous). Tabulated results show that 107 alcoholic extracts caused inhibition of *M. aureus* and 51 *E. coli* ; of the aqueous extract, 333 inhibited *M. aureus* and 258 *E. coli* . The inhibiting activity against *M. aureus* was observed frequently in many species of Moraceae, Leguminosae, Euphoreacea, Malvaceae, Verbenaceae, and Compositae. *E. coli* was inhibited by many species of Moraceae. Those which inhibited both test organisms are: *Polanisia icosandra* (Linn.) W. & A., *Cydista aequinoctialis* Linn., "bigonia"; *Elephantopus mollis* HBK, "tabacotabacohan"; and *Gnetum gnemon* Linn., "bago". The distribution of antibacterial substances in the different plant parts is quite uneven and the parts used for medication neither always possess the antibacterial properties nor show highest inhibitive activity against *M. aureus*.

Studies on the isolation of the active principles of *C. aequinoctialis*, *Muntigia calabura* Linn., "datiles", and *Samanea saman* (Jacq.) Merr., "acacia", are being undertaken.

NITROGEN

543.8:547.23:582.542.1

42. Preliminary report on nitrogen content of talahib (Saccharum spontaneum L.) pollen grain. Gloria Laserna, Josefina Buenaventura and Joaquin Marañon. Journal of the Philippine Pharmaceutical Association, May 15, 1958, v.45, no.5, p.127-130. 9 refs. (Paper read during the scientific meeting of the 1958 annual meeting and national convention of the Philippine Pharmaceutical Association held in Cebu City, April 24-26)

The total N-content of the whole pollen was 3.91% and the total nitrogen content of the prepared aqueous sterile extract was 4.70%. The pollen extract was prepared as follows: 3 g of dried oil-free pollen was macerated with Coca's solvent, to which a little toluol was added to prevent bacterial growth. After allowing it to stand at room temperature the mixture was decanted, filtered and made up to 100 cc vol. with Coca's solvent, then sterilized.

Clinical tests of the extract on persons suffering from distressing allergic condition gave positive results. However, it could not be concluded that the extract is a causative agent to allergenic conditions, due to insufficient amount of material. The Bukefield filter did not absorb much of the nitrogen in the extract.

543.8:547.23:582.736

43. Nitrogen distribution of the seeds of Vigna sinensis Savi. Sebastian Sanchez. Journal of the Philippine Pharmaceutical Association, May 15, 1947, v.34, no.5, p.175-185. tables. 14 refs. (Part of a thesis presented to the Graduate School, UST, in partial fulfillment for the degree of D.S. in Pharmacy)

The white and purple varieties of *Vigna sinensis* Savi, locally known as "sitao", were used. The nitrogen distribution in the aqueous extract showed that the purple variety contains more free amino acid nitrogen than the white variety, based on the total nitrogen. In the hydrolytic product of the aqueous extract, the purple variety also gave much higher acid amide, humin, and basic nitrogen than the white variety. The white variety however, gave higher percentage of non-basic nitrogen. Of the 0.43% non-basic nitrogen in the water soluble extract of the white variety, 0.11% was a-monoamino nitrogen; of the 1.93% non-basic nitrogen in the hydrolytic product, 0.95% was a-monoamino nitrogen.

MUCILAGES

543.8:547.458.7

44. A chemical study of the mucilage of "katmon" (Dillenia indica (Linn.). Fe M. de Leon, Manila, Centro Escolar University, 1954. 117p. tables. 32 refs. (Thesis. M.S. in Pharmacy)

Mucilage from the fruit of "katmon", *Dillenia indica* Linn., obtained from the Botanical Garden of CEU (Manila), was isolated by precipitation with 95% C_2H_5OH. The mucilage obtained was 0.02%/wt of fruit or 0.16%/wt of carpels. It was found that, for research purposes, the most valuable method for the quantitative determination of mucilage is one which uses the white fibrous mass alone as it is considered pure.

Preliminary analysis of the mucilage revealed that it is insoluble in organic solvents such as $CHCl_3$, CS_2, C_6H_6, $(CH_3)_2CO$, ether, and glycerine; slightly soluble in cold H_2O and 5% NaOH but soluble in H_2SO_4 and hot H_2O. It is highly acidic, contains P, S, and other organic constituents, and gives positive results to the general tests for carbohydrates. It gave an average moisture content of 2.70% after drying in an oven at a temperature kept below 100°C. The saponification value was found to be 386 and the swelling factor was slight, proving high mucilage content. The mucilage hydrolyzed with 4% H_2SO_4 gave positive results to tests for pentoses, methyl pentose, galactose, rhamnose, xylose, and uronic acid. Test for ketose was negative. It was also found that the mucilaginous solution of "katmon" is prone to decomposition; it deteriorated after 24 hr. with the production of sediments and turbidity. Light affects its stability so that storage in amber colored bottles is recommended. Sodium benzoate was found the best preservative for the solution.

Heating of the mucilaginous solution with conc. HCl at 80°C did not render it any different from ordinary mucilage. It gave the same results to tests made on ordinary mucilage. However, the ash-free mucilage had no inorganic substances and contained less mucilage (0.019%/wt of fruit or 0.158%/wt of carpels). The average ash content of the ash-free mucilage was 0.26%.

PECTIN

543.8:547.458.88:582.635.5

45. A study of the properties of pectin isolated from ramie. Estelita N. Moreno. Manila, Adamson University, 1950. 35p. graphs. 24 refs. (Thesis. M.S. in Chemistry)

Pectin from ramie was isolated by precipitation with 95% C_2H_5OH. The average yield was 10% of the weight of degummed ramie. The properties of ramie pectin were found comparable to that obtained from fruits that it points to a possibility of using it in pharmacy. The following are the results of the analysis of pectin: ash content 1.4%, pH 8.3, viscosity 4.56, and methoxyl content 4.24%. The pectin was found to be dextrorotary with specific rotation of 110°. It has a fair jellying property.

543.8:547.458.88:582.751.9

46. Determination of the best conditions in the extraction of pectin from *Citrus mitis* (Rutaceae). Socorro Almendras Gillera. Manila, University of Santo Tomas, 1957. 72p. tables. 16 refs. (Thesis. M.S. in Pharmacy)

Reference is made to previous works on the determination of pectic substances in plants and their composition. The use of pectin in medicine is traced to the present time. In 1940, its preparation was made official by the N.F. Recently, it has been used as blood agglutinant in the treatment of internal hemorrhage.

As different classes of pectic substance vary considerably in their solubility, appropriate solvents should be chosen for its extraction. Pectin from peels of Citrus mitis (Rutaceae), locally known as "kalamansi" was best extracted with HCl and then precipitated with 95% alcohol. The best conditions were determined at pH 1 and heating time for 1.5-2 hr. Likewise, pectin from "naranjita" Citrus nobilis (Lour.) was also obtained. Tabulated results show that the pectin from "kalamansi" and "naranjita" are within the limits set by the N.F. for commercial pectin. The "kalamansi" peels yielded 9.04% pectin with a methoxyl content of 10.8% and galacturonic acid content of 84.4%. Although "naranjita" peels give a better quality of pectin than the "kalamansi" peels, it is not the best source of citrus pectin because the yield is rather low. It was also observed that the yellow peels of ripe "kalamansi" (not overripe fruits) yield the best kind of pectin whereas dried peels yield less pectin than fresh ones. On the other hand, pectin from citrus fruits which has green-colored peels, even when they are ripe, is of poor quality.

Prolonged heating of the product has a low methoxyl content, although the yield would be greater.

OILS

543.8:547.915

47. Further study on the chemistry of Quisqualis indica Linnaeus. Trinidad Barcelon. Journal of the Pharmaceutical Association, Dec. 1931, v.3, no.12, p.478-490. 28 refs. (Part of a thesis submitted by the author for the degree of D.S. in Pharmacy, UST)

About 25.02% fixed oil was extracted with petroleum ether from the seeds of Quisqualis indica Linn. locally known as "niog-niogan". The oil gave the following constants; sp. gr. at 30°C, 0.9209; refractive index at 29°C, 1.460; congealing point -7.5°C; saponification value, 188.79; iodine value (Hanus), 32.04; acid value, 69.94. It consisted of solid and liquid fatty acids. The solid fatty acids consisted of palmitic, which melted at 58-61°C, oleic and other saturated fatty acids. The liquid fatty acid gave colorless crystals which melted at 116-120°C; no other derivatives of unsaturated acids were obtained. About 2.4% unsaponificable matter was obtained from the oil and from which sitosterol with a m.p. of 135°C, and an acetyl derivative with m.p. 125°C were obtained. The presence of formic acid was also indicated.

Alcohol extracted about 5.8% oil which gave the following constants: sp. gr. (30°C), 0.7722; refractive index (29°C), 1.4651; congealing point -5°C; saponification value, 181.9; iodine value, 33; and acid value, 17.28. A sugar was isolated from the alcoholic extracts which gave an osazone melting at 201°C when prepared by Fischer's method.

543.8:547.915:582.542.1

48. Rice oil. I. Physical and chemical properties. Dalmacio Suaco and Elias Canapi,Jr. Journal of the Philippine Pharmaceutical Association, Sept. 1953, v.40, no.9, p.319-323. (Paper read during the annual meeting and convention of the Philippine Pharmaceutical Association on April 17, 1953)

The possibility of utilizing local rice bran as source of pharmaceutical oil was studied. Crude oil was extracted from rice bran with petroleum ether in a soxhlet apparatus. The oil was refined with soda ash and bleached with approximately 5% activated charcoal. It was then chilled overnight and allowed to stand for 24 hours after which it was filtered. The physical and chemical properties of the oil obtained agreed closely with USP oils, except for the relatively lower iodine number and higher titer value of the rice bran oil.

543.8:547.915:582.678.1

49. A chemical study of the

Philippine avocado (Persea americana Mill) with special reference to the fatty oil. Clara Manotok-Salita and Patrocinio Valenzuela. Journal of the Philippine Pharmaceutical Association, Dec. 15, 1947, v. 34, no.12, p.463-474. 11 refs. (Part of a dissertation submitted in 1941 by C. Manotok-Salita to the Committee on Graduate Studies, UP, in partial fulfillment of the requirements for the degree of M.S.)

Phytochemical examination of the pulp, seed and peeling of mixed varieties of avocado, including 9 segregated varieties (Talisay, Talisay 81, Talisay 89, Talisay 199, Lopena, Lyon, Cardinal, Commodore, Wilson), revealed that the local varieties contain higher percentages of minerals than those found in foreign varieties.

Continuous extraction, maceration, and percolation were employed to separate the fatty oil from the pulps and seeds. Extraction with petroleum ether proved the best method, yielding 22.34% oil from dried seeds. The fixed oil from the pulp and seed gave similar properties: sp. gr. at 31°C, 0.9181-09298 (for pulp oil) and 0.9167-0.9238 (for seed oil); refractive index at 30.5°C, 1.4683-1.4687; optical rotation, inactive; acid value, 4.43-5.82 (pulp oil) and 4.82-6.21 (seed oil); saponification value 192.98-193.79; iodine value 95.384-95.413; unsaponifiable matter 1-1.11%. The seeds gave more fatty oil than the pulps, and the yield compares favorably with that of the California variety.

The use of avocado oil was tried in different formulae for cleansing creams, night cream, shaving cream and hand lotion. The results were encouraging.

543.8:547.915:582.751.9

50. A study of the volatile oil of the rind of Citrus hystrix DC. var. Micrantha. Carmen O. Florenta. Manila, Philippine Women's University, 1959. 25p. tables, illus. 12 refs. (Thesis. M.S. in Pharmaceutical Chemistry)

3.48% oil was obtained by extraction with H_2O from fresh rinds of Citrus Hystrix DC. var. Micrantha, locally known as "biasong" or"balincolong", which were collected from Cebu City (Cebu). Preliminary tests of the oil indicated the presence of free acids, aldehydes, and sesquiterpenes; sulfur, nitrogen, and halogens were absent. The oil was found very soluble in 95% alcohol and gave the following constants: 0.8619 sp. gr. at 28°C, 1.4610 refractive index at 28°C, 46.16 specific rotation at 33°C, 1.492 acid no., 8.032 saponification value, and 6.18 ester no. (before acetylation) and 88.82 (after acetylation). Fractionation of the oil at 9 mm pressure yielded 5 fractions collected between temperatures 78°-102°C. Two fractions were identified as citral which gave clusters of leaflet crystals melting at 170-171°C (citral b) and needle-like crystals melting at 167-168°C (citral a). The aldehyde content of the oil, calculated as citral by the Hydroxylamine method was 3.74%.

Results of the experiment, using the oil in the preparation of aromatic spirit of ammonia and compound orange spirit in place of lemon and orange oils, showed that the preparations compare favorably with the official ones in odor and taste, with only a slight difference in odor.

It was observed that the percentage yield of oil depends upon the size and age of the fruit; the fresh firm fruits with a deep green rind give a higher percentage than the old withered fruit. It is suggested that further studies be made on the fractions not studied and on the fruit itself.

543.8:547.915:582.751.9

51. A chemical study on the volatile oil of Citrus nobilis Lour. var. Ladu. Angelina M. Samala-Villarica. Manila, Philippine Women's University, 1956. 34p. tables, illus. 28 refs. (Thesis. M.S. in Pharmaceutical Chemistry)

The leaves of "dalanghita", *Citrus nobilis* Lour. var Ladu, collected from Lipa City (Batangas) yielded 0.833% volatile oil. The oil obtained was colorless when freshly distilled but turned yellowish on standing. It had a delicate aromatic odor and an almost bitter-biting taste; it was found very soluble in 95% C_2H_5OH, CCl_4, and $CHCl_3$; slightly soluble in ether, and petroleum ether, but insoluble in H_2O. It gave the following constants: N (28°C), 1.4763; d (28°C), 0.8625; (d) D (33°C). + 3; iodine number 187.12; saponification value, 28.33; acid value, 2.489; ester value (before acetylation) 13.12 and 96.44 (after acetylation). The oil was found to contain sesquiterpenes and reducing substances but no S, N, X, and phenols.

Fractionation of the oil at 5.5 mm pressure yielded 8 fractions. Fraction III (7.6%), obtained between 78-80°C, was identified as linalool. Linalool gave needle-like crystals melting between 163-165°C, and leaflet crystals melting between 171-172°C and identified as citral a and b, respectively. Fractions IV, V, and VI, (24.8%) were identified as citrals melting between 164-165°C. The other fractions could not be studied due to small amount obtained.

The "dalanghita" oil proved to be a good substitute for either lemon or orange oil in the preparation of Aromatic NH_3 spirit and Compound Orange, spirit, such as Aromatic Elixir, U.S.P., Iso-alcoholic Elixir, N.F. (high or low alcoholic elixir). These galenical preparations using "dalanghita" oil, compared favorably with the official preparations in color, odor and taste. It was observed however, that the oil alone cannot be a substitute when both lemon and orange oils are required in the preparation, unless the amount of "dalanghita" oil is reduced to approximate the odor and taste of official preparation.

The leaves of "dalanghita" were found to contain also alkaloids, reducing substances, proteins, mucins, 8.56% total ash and 0.773% acid-insoluble residue.

543.8:547.915:582.798

52. Studies on theobroma oil prepared from Philippine cacao. Lilia Villanueva-Zaragoza and Luz Oliveros-Belardo. Journal of the Philippine Pharmaceutical Association, Sept. 15, 1955, v.43, no.9, p.201-215. tables, illus, graphs. 18 refs. (Part of a dissertation submitted by L. Villanueva-Zaragoza to the Graduate School, PWU, in partial fulfillment of the requirements for the degree of M.S. in Pharmaceutical Chemistry. Read at the 1954 National Convention of the Philippine Pharmaceutical Association held in Dagupan City April 22-24)

2 methods of extracting theobroma oil from local cacao were employed, namely, extraction with petroleum and ether, and pressing in a Carver vertical hydraulic press. 33 1/3% oil was obtained by pressing 1.2 kg cacao. The physical and chemical constants of the oil samples were determined. Tabulated results indicate that local oil compare favorably with foreign butter and that the physical and chemical constants are within the U.S.P. requirements. There was only a slight increase of 0.004 in the specific gravity of the oil obtained by pressing.

Using the prepared local butter and the foreign butter each as a base, suppositories containing 0.5 g aminophylline, 0.065 g belladonna, 0.5 g theophylline sodium acetate, and 3 g water soluble dye (amaranth F.D. and C. Red No.2) were prepared and the percentage release of the drug from each were determined. The percentage theophylline release from the theophylline sodium acetate and aminophylline suppositories showed very slight low values than that obtained by Peterson and Guida. With belladonna suppository, 50% medicinal release was obtained at the 4th hr for both local and foreign butter. The percentage dye release in local butter was slightly higher than in foreign butter, although both compares favorably with the results of Gross and Becker. The addition of wax was found to decrease the percentage release of medicament in both local and foreign butter.

543.8:547.915:582.883

53. On,the volatile oil of the leaves of Psidium guajava Linn. Philippine variety. Adelaida Ustaris Leoncio. Manila, Philippine Women's University, 1959. 50p. tables. illus. 41 refs. (Thesis. M.S. in Pharmaceutical Chemistry)

The leaves of *Psidium guajava* locally known as "bayabas", were collected from Biak-na-bato and Del Monte Avenue (Quezon City). 0.62% volatile oil was obtained from the leaves by extracting with water. It was found that the young leaves yielded more oil than matured ones. The oil was colorless when freshly distilled but turned greenish yellow on standing. It had a pleasant aromatic odor and a pungent taste. Preliminary tests showed the presence of phenol and 4% aldehyde by the Cassia flask method; sesquiterpenes and reducing substances; negative results were obtained in the tests for sulfur, nitrogen, and the halogens. The oil was found very soluble in 95% C_2H_5OH, CCl_4, $CHCl_3$, ether, petroleum, ether but insoluble in water. It gave the following constants: 0.8962 sp. gr. (25°C), 1.4860 refractive index, 16.8 specific rotation (32°C), iodine number of 44, acid value (1-month old oil) 3.19 and 2.2 (freshly distilled oil), saponification value (1-month old oil) 17.21 and 16.6 (freshly distilled oil), ester value (1-month old oil) 9.2 and 12.8 (freshly distilled oil) and 35.42 (after acetylation of 1-month old oil).

Fractionation of the oil at 50 mm pressure gave 5 fractions. Fraction I (boiled out at 63-73°C) showed some properties close to limonene. Its identity, however, could not be determined due to the small amount obtained. Fraction V (residue obtained at 120-130°C) was further distilled; fraction V-A (obtained at 119-120°C) was similar to caryophyllene while fraction V-B (boiled out at 144-145°C) could either be phenol or a phenolic ether or an ester.

A preliminary study of the bacteriological property of the oil revealed its antiseptic properties. It inhibited the growth of *Escherichia coli* and *Bacillus subtilis* using the filter paper disc method, but not that of *Pseudomonas aeruginosa* and *Micrococcus aureus*. Tabulated results show that the antiseptic activity of the oil is approximately 1/9 that of phenol. As determined by the dilution method, the oil inhibited the growth of *M. aureus* at 1:10 dilution 2.5 minutes, while phenol showed inhibition at 1:90 dilution.

A review of the literature on *Psidium guajava* Linn. is given, covering botanical description, uses and previous investigations of the volatile oil of guava leaves in India.

543.8:546.915:582.883

54. The oil content of various species of Eucalyptus grown locally. Fernanda Rodriguez-Belmonte. Journal of the Philippine Pharmaceutical Association, Oct. 15, 1952, v.39, no.10, p.333-335. tables.

The leaves of 5 species *E. robusta* Sm., *E. citriodora* Hook, *E. viminalis*, *E. globulus* Lab., and *Eucalyptus* sp. were collected from the Botanical Garden of the University of Santo Tomas on March 19, 1952 and air-dried for 3 days. Their oil contents were determined according to U.S.P. method. Tabulated results show that *E. citriodora* yielded the highest oil content, 5.8 cc/100 g of air-dried sample. The oil had an agreeably pleasant citronell-odor. An unidentified Eucalyptus species grown in Baguio

City was found to yield relatively high amount of oil, 4.4 cc/100 g of air-dried sample. As a whole, oil content of locally grown species compare favorably with those of the species grown elsewhere.

The therapeutic uses of the oil of eucalyptus which abound in the Philippines are mentioned.

543.8:547.915:582.883

55. Pharmacognostical study of Eucalyptus deglupta Blume together with a chemical study of its volatile oil. Concepcion B. Santos. Manila, University of Santo Tomas, 1958. 94p. illus, tables. 13 refs. (Thesis. D.S. in Pharmacy)

A brief review of previous works and investigations on *E. deglupta* and 7 related species is presented, together with the histologic description and a brief discussion of the nomenclature, medicinal and industrial uses, and the gross morphology of *Eucalyptus* plant in the Philippines. The materials used in the study were taken from the Pacdal Forest Nursery in Baguio.

E. deglupta in different forms is known for several medicinal uses: the oil is used for inhalation in treatment of cough in cases of chronic bronchitis, asthma, and catarrhal colds; as vermifuge in the treatment of hookworm; in ointment form, in the treatment of burns; and used as antiseptic and deodorant. Industrially, the oil is used as clothes cleaner, spot and stain remover, and in mineral flotation. The timber is used in the production of charcoal, methyl, alcohol, acetone and for structure purposes.

Proximate chemical analysis of the air-dried powdered leaves, using standard U.S.P. methods, gave the following results: 3.882% total ash (2.0355% is water-insoluble, 1.8465% water soluble and 0.20615% acid insoluble); 11.235% ether-soluble extractives (3.5265% volatile ether extract); 4.4885% moisture; 13.28% crude fiber; 21.875% crude protein; and 45.239% nitrogen-free extract.

Steam distillation of the air-dried leaves gave a yield of 0.35% volatile oil. The oil was noted to be light yellow, slightly acid to litmus, aromatic odor, and very soluble in 80% alcohol. It has the following constants: 0.92815 sp. gr. at 25°C, 1.480 fefractive index N_{D20}, 44.765 ester number, 50.125 saponification value and 5.360 acid value. It contains phellanorene, aldehydes, 33% ketones, and 9% phenols. Microchemical and quantitative tests failed to reveal the presence of cineole.

543.8:547.915:582.937

56. A study of the essential oil of ilang-ilang. Anacleto del Rosario y Sales. Journal of the Philippine Pharmaceutical Association, Sept.15, 1949, v.36, no.9, p.439-446. (Translated by Dean Patrocinio Valenzuela of the College of Pharmacy, UP from original paper in Spanish published in the Revista Farmaceutica de Filipinas, Jan-March and April 1893, v.1, no.1, 3, & 4. The original is also printed in this issue of the journal)

"Ilang-ilang" oil is obtained by steam distillation from mature petals of fresh flowers of *Cananga odorata* Hook f. Thoms. A yellowish liquid, the oil has a delicate and penetrating odor, with a sp. gr. of 0.905 at 30°C. It is completely and easily soluble in ether, benzine, $CHCl_3$, absolute alcohol, and in fixed and essential oils, but practically insoluble in H_2O and glycerin. It is laevorotatory with a sp. rotation of -33'70° at 30°C. It reacts with KOH 30°B, $NaHSO_3$, Perrot's reagent, H_2SO_4 66°B, HNO_3, rosanilin bisulfite and iodine.

From the above physical and chemical constants of the oil, it is easy to detectthe presence of any adulterants. The procedure in determining the purity of "ilang-ilang" oil is outlined.

543.8:547.915:615.32

57. Contribution to the study of the Philippine medicinal oils obtained from Sesamum indicum, Citrus maxima, Ricinus communis, Dipterocarpus verniciflus, Ceiba pentandra. Gertrudes M . Medina. Manila, University of Santo Tomas, 1934. 63p. tables, illus. 6 refs. (Thesis. D.S. in Pharmacy)

The study is divided into 2 parts: the theoretical and the experimentel. The theoretical part includes the descriptions of the families, genera, and species where the medicinal oils were obtained; the distribution and the general characteristics of their oils.

The experimental part discusses the collections and preparations of the oils. Using the Hanus method, the iodine values found were: Sesamum indicum, 97.0329; Ceiba pentandra, 115.5976; Ricinus communis 85.6252; Citrus maxima, 78.6032; and Dipterocarpus verniciflus, 90.8326. The refractive index readings (Abbe Refractometer) were 1.4746 for Sesamum indicum, 1.4587 for Ceiba pentandra, 1.6752 for Citrus maxima, 1.7321-1.8434 for Dipterocarpus verniciflus, and 1.8242 for Ricinus communis.

The tests for the saponification value gave the following average results: Sesamum indicum, 185.886; Ceiba pentandra, 179.896; Dipterocarpus verniciflus, 192.5207; Ricinus communis, 183.85; and Citrus maxima, 171.339. On the other hand, the evaporation tests conducted to determine the % of the oil that is volatile gave the following average results: 0.002975%, Sesamum indicum; 0.005095%, Ceiba pentandra; 0.003135%, Dipterocarpus verniciflus; 0.00212%, Ricinus communis; and 0.007485%, Citrus maxima.

The fixed refractive index of the oils at a constant temperature indicates the purity of the oil; the constant iodine and saponification values of the oils emphasize the purity of the oils in their oil consistency; and the evaporation values obtained indicate only a very slight trace of volatile constituent of the oils.

SAPONIN

543.8:547.918:582.736

58. Phytochemical study of the bark of Entada scandens Benth. with special emphasis on the saponin using cellosolve as extractant. Lourdes P. Antolin. Manila, University of Santo Tomas, 1952. 37p. 14 refs. (Thesis. M.S. in Pharmacy)

Reference is made to previous unsuccessful experiments on the separation and isolation of the saponin content of Entada scandens Benth. known in Tagalog as "gogo" by the 4-solvent methods (petroleum ether, magnesia, lead acetate, and methyl alcohol).

The present work employed cellosolve, chemically known as monoethyl ether of ethylene glycol, as the extractant (presented by George D. Curts and Lloyd E. Harris in their "Proposed Method of Isolating Plant Constituents"). It was found that cellosolve can extract all plant constituents which may also be extracted by petroleum ether, $CHCl_3$, and alcohol. Ether, acetone and a mixture of equal parts of both were used to recover the saponin from cellosolve. It was found that extracting with ether and acetone is better than a mixture of the two, followed by subsequent reprecipitation with ether in both cases. Water could not be used, as saponin is soluble in it.

Hydrolysis of the saponin gave a crystalline sapogen melting at 285°C-289°C and which was found by micro-analysis to contain 61.97% carbon, 9.5% hydrogen, and 3.65% residue. Attempts to isolate the saponin in pure form were unsuccessful as it appeared to be very unstable.

The use of collosolve was found simple and more economical than the 4-solvent methods described.

Although its popular use is as a washing agent, "gogo" is used for treating itch, as an emetic, and its seeds as a febrifuge. Furthermore, "gogo" can be an excellent source of sapogenin (hydrolysis product of saponin) which is an important starting material for the synthesis of cortisone.

543.8:547.918:582.982

59. A crystalline saponin from Luffa cylindrica (Linn.) Roemer. Amparo Mendoza-Castro and Alfredo C. Santos. Journal of the Philippine Pharmaceutical Association, Feb. 15, 1947, v.34, no.2, p.43-52. tables. (Part of a dissertation submitted by Amparo Mendoza-Castro to the Committee on Graduate Studies, UP in partial fulfillment of the requirements for the degree of M.S.)

The air-dried fruits of Luffa cylindrica (Linn.) Roemer, obtained from Bigaa (Bulacan), yielded a crystalline saponin melting at 268-270°C. The saponin dissolved in water, 50-90%, alcohol, conc. HCl, CH_3OH, and conc. NaOH. It was found laevorotatory. Elementary analysis of the saponin gave the following results: 50.80% C, 8. 8% H, and 9.32% residue. The reaction with cholesterol gave a crystalline cholesteride melting at 135-138°C; upon hydrolysis, it gave a sapogenin melting at 283-285°C. The other properties of the saponin are: hemolytic index 1:27,000 (with dog's blood); foam index 1:7000; fish index, 1:33,000 (mosquito fishes).

The minimum fatal dose on frogs was 0.06 mg/g body weight. Pharmacological test made on dogs revealed increased urination, dilatation of the pupils of the eyes and slight decrease of rectal temperature, upon administration per orem of 30 mg/kg body weight.

543.8:547.918:615.32

60. A survey of some Philippine plants for steroidal sapogenins. Felicidad Estores-Ansaldo, Joaquin Marañon, and Santa Ancheta. Journal of the Philippine Pharmaceutical Association, July 15, 1956, v.43, no.7, p.235-237. 9 refs.

Steroidal sapogenin was found to be a suitable starting material for the synthesis of cortisone which has been used in the treatment of rheumatic diseases.

A preliminary investigation of some 283 local plants showed that those belonging to the Leguminosae, Dioscoreaceae, Euphorbiaceae, Apocynacea, Solanaceae, Amaranthaceae, Verbenaceae, and Bixaceae families contain steroidal sapogenins Of the 339 extracts examined, 86 alcoholic extracts gave positive results for sapogenins using the hemolysis test, from which crude sapogenin acetates were isolated and determined on a Beckman DU quartz spectrophotometer. 40 gave spectral curves of steroidal sapogenin within the region of 220-400 u. The barks of Nerium indicum Mill (adelfa), Jatropha curcas Linn. (tubang-bakod), Macaranga tanarius (Linn.) Muell-Arg. (binoñga), the tubers of Dioscorea hispida Dennst. (nami), the stems of Avicennia officinalis Linn. (api-api), Bixa orellana Linn. (achuete), Vitex negundo Linn. (lagundi), the fruit of Capsicum longum Sendt (sileng haba), and the leaves of Melia azedarach Linn. (paraiso) gave high percentages of sapogenin content.

Plants belonging to the Liliaceae, Amallidaceae, Malvaceae, Tiliaceae, Sapotaceae, Palmae, Araceae, and Anonaceae families gave negative results.

543.8:547.918:615.32

61. Local saponaceous plants as a possible source for cortical steroids. Joaquin Marañon . Journal of the Philippine Pharmaceutical Association, Aug. 1952, v.39, no.8, p.268-269. 6 refs. (Paper read at the scientific session of the 1952 annual meeting and national convention of the Philippine Pharmaceutical Association held on April 23, 1952 at Bacolod City)

The local plants included in the investigation for steroidal sapogenins are: *Dioscorea hispida* Dennst., *Dioscorea alata* Linn. *Dioscorea esculenta* (Lour.) Burkill, *Agave cantala* Roxb., *Agave sisalana* Perrine ex Engelm., *Yucca aloifolia* Linn., *Plumiera acuminata* Ait., *Thevetia peruviana* (Pers.) Merr., *Cerbera manghas* Linn., *Nerium indicum* Mill., *Strophanthus cumingii* A. DC., and *Antiaris toxicaria* (Pers.) Leach.

The investigation has covered also the determination of the glycosidal content of different varieties of *Nerium indicum* Mill and *Thevetia peruviana* (Pers.) Merr.

ALKALOIDS

543.61:547.94:582.972

62. Cinchona alkaloid extraction by ion-exchange. Edgardo P. Reyes, Joaquin Marañon, and Victoriano Galang. Journal of the Philippine Pharmaceutical Association, April 15, 1951, v.38, no.4, p.105-108. 1 ref. (Paper read at the scientific meeting of the 1951 annual and national convention of the Philippine Pharmaceutical Association held in Davao City on April 23, 1951)

The method of extracting alkaloids from Cinchona bark, as tried by Applesweig and Ronzons, has been applied in the process discussed here.

The apparatus used is made up of glass cylinders (3" inside dia. by 20" high), connected in series of three, which served as the exchange columns. These columns were loaded with the ion-exchange material, 1 kg. "Amberlite" exchanger per column. 20 kg of locally grown Cinchona bark were macerated with 0.1 N, H_2SO_4 and the resulting solution was circulated through the columns until saturation point, i.e., until a light yellow precipitate was formed when the solution was tested with Mayer's reagent. The saturated column which was then replaced with another, was treated with 0.5 N NaOH solution and washed with water. The alkaloid, assayed to be 5% total alkaloids, was recovered from the column by a continuous alcohol-solvent recovery process. It was obtained in dried form by evaporating the alcoholic extract to dryness.

A list of 39 Philippine plants with antimalarial properties like Cinchona, is presented.

543.8:547.94

63. Alkaloids of Mahonia philippinensis Takeda. Esperanza R. Castro, Alfredo C. Santos, and Patrocinio Valenzuela. Journal of the Philippine Pharmaceutical Association, Dec. 1932, v.4, no.12, p.475-479. 4 refs. (Part of a thesis presented by Miss E. R. Castro to the Committee on Graduate Studies of the University of the Philippines, 1932, in partial fulfillment of the requirements for the degree of M.S.)

A small amount of tertiary and a greater amount of quaternary base were isolated from the stems of *Mahonia philippinensis*, popularly known as Baguio barberry. From the quaternary portion, the following were identified: (1) tetrahydroberberine which melted at 173-174°C; (2) tetrahydrojatrorrhizine which melted at 215-216°C; and (3) tetrahydroshobakunin which melted at 140°C. The tertiary portion could not be studied further because of the small amount obtained.

543.8:547.94

64. Pharmacological study of quaternary alkaloids and fluid extract of Phaeanthus ebracteolatus (Presl) Merrill (kalimatas). Faustino Garcia. Philippine Journal of Science, April 1940, v.71, no.4, p.361-372. table, plates. 4 refs.

The effects of aqueous or alcoholic solution of the quaternary alkaloid obtained from the bark of "kalimatas" were observed in animals. The minimum fatal dose for mammals was 1 cc/kg body weight. The symptoms observed were depression; increased and decreased respiration until finally respiration ceased; and increased and decreased heart rate until heart beat ceased.

With maximum non-fatal dose the heart, respiratory and pulse rates were affected but returned to normal. The most important effect was a distinct fall in blood pressure, produced with 0.1 cc. The effect was of longer duration than that produced by nitroglycerin and acetyl-choline. The fall in blood pressure was due to dilation of the blood vessels and depression of the heart in larger doses of the alkaloidal solution. With sufficient doses it depressed the intestine, tracheal muscles and uterus; counteracted the stimulant effects produced by pilocarping and barium on the intestine and tracheal muscles, and by pitocin and histamine on the excised uterus.

543.8:547.94

65. Alkaloids of Phaeanthus ebracteolatus (Presl) Merrill: on phaeantharine chloride. Gertrudes Aguilar-Santos and Alfredo C. Santos. Journal of the Philippine Pharmaceutical Association, May 1952, v.39, no.5, p.148-150, diagr. 8 refs.

A quaternary alkaloid was successfully isolated from *Phaeantnus ebracteolatus* (Presl) Merrill, locally known as "kalimatas". The diagrammatic scheme of isolation of phaeantharine chloride is presented. An analysis of its hydrate gave the following results: carbon 59.5%, H 6.4%, N 3.6%, Cl 9.15% and O 21.35% (by difference)

Phaeantharine chloroplatinate was formed by treating a solution of phaeantharine chloride with platinic chloride solution.

543.8:547.94:582.675.4

66. Alkaloids of Pycnarrhena manillensis Vidal (Family Menispermaceae): constitution of pycnamine. Eugenia A. Hernandez and Alfredo C. Santos. Journal of the Philippine Pharmaceutical Association, Sept.15, 1946, v.33, p.67-74, tables. 9 refs. (Part of the dissertation submitted to the Committee on Graduate Studies University of the Philippines by E.A. Hernandez in partial fulfillment of the requirements for the degree of M.S.)

7 kg of the powdered roots and stems of *Pycnarrhena manillensis* Vidal yielded about 7 kg of pycnamine which melted at 183°C. The alkaloid was found soluble in alcohol, ether, $CHCl_3$, and CH_3OH. It was found to be laevorotatory. When subjected to exhaustive methylation with dimethyl sulfate, it yielded a methine base and a non-nitrogenated substance. With chlorocarbonic acid ester, it was converted to a non-basic urethane indicating that it is a tetrahydroisoquinoline derivative. The color reactions of pycnamine were also studied.

The following salts of pycnamine were prepared: pycnamine chloroaurate, melting at 238-240°C; pycnamine chloroplatinate, melting at 235-237.5°C; pycnamine picrate, melting at 120-122°C.

543.8:547.94:582.682

67. The alkaloids of Argemone mexicana. Alfredo C. Santos and Pacifica Adkilen. Journal of the Philippine Pharmaceutical Association, Aug. 1932, v.4, no.8, p.258-260. 5 refs. (Reprinted from the Journal of the American Chemical Society, July 1932, v.54, no.7, p.2923)

Two alkaloids isolated from the whole plant of *Argemone mexicana*, collected from San Juan (La Union), were identified as tetrahydroberberine, melting at 173-174°C and the other as protopine, which melted at 207°C.

543.8:547.94:582.951.4

68. Comparative studies of Datura metel L. and Datura meteloides Dunal. Emma P. Maniquis. Journal of the Philippine Pharmaceutical Association, July 15, 1955, v.42, no.7, p.137-142. tables. 17 refs.

(Abstracted in part from a thesis submitted to the Graduate School of Ohio State University by Emma P. Maniquis in partial fulfillment of the requirements for the degree of Doctor of Philosophy)

The alkaloidal constituents of mature leaves of Datura metel L. and Datura meteloides Dunal were investigated in 1953. The average total alkaloids of D. metel L. was found to be 0.499%, which is composed of scopolamine 0.218%, hyoscyamine 0.173% and an unidentified compound 0.102% (not meteloidine). The average total alkaloids in D. meteloides was 0.354% from oven-dried leaves, and 0.396% from lyophilized leaves. The constituents present were (1) from oven-dried leaves - scopolamine 0.202% and an unidentified compound 0.152%; (2) from lyophilized leaves - scopoamine 0.219% and an unidentified compound 0.177%. These results indicate that the lyophilization process of drying is comparable to oven drying process with respect to the amount of total alkaloids obtained.

The alkaloidal constituents were separated by the paper chromatographic procedure. The Rf values for the individual alkaloids established at pH 7.4 are: scopolamine 0.89, meteloidine 0.74, and hyocyamine 0.65. A method of separating the alkaloids by paper electrophoresis was also developed.

Histological studies of the leaves, flowers, stems and fruits of both species proved that they are similar, except that in the mature leaves of D. metel L., the glandular hairs are more numerous than those of D. meteloides Dunal. On the other hand, the uniserate type of hairs are predominantly found in D. meteloides.

545.2:547.94

69. The application of non-aqueous titration on alkaloids and alkaloidal salts. Maria Lourdes Arreola-Valmonte and Jesusa A. Concha. Journal of the Philippine Pharmaceutical Association, March 15, 1954, v.41, no.3, p.95-118. tables. 27 refs. (Abstracted in part from a dissertation submitted by Maria Lourdes Arreola-Valmonte to the Graduate School, UP, in partial fulfillment of the requirements for the degree of M.S.)

The following official and some non-official alkaloids and alkaloidal salts were successfully titrated, using the perchloric acid-glacial acetic system of assay:

1) With methyl violet and alpha-naphtholbenzein indicators - cinchonidine, cocaine, codeine, codeine phosphate, codeine sulfate, quinine sulfate, and strychnine sulfate.
2) With methyl violet and quinaldine red indicators - quinine and quinine hydrochloride.
3) With methyl violet indicator - brucine, narcotine, quinidine, strychnine, arecoline hydrobromide, cocaine hydrochloride, ephedrine, hydrochloride, homatropine hydrobromide, morphine hydrochloride, pilocarpine hydrochloride, quinine hydrobromide, scopolamine hydrobromide, and pilocarpine nitrate.
4) With alpha-naptholbenzein indicator - theobromine.

Theophylline could not be titrated and physoctigmine salicylate gave inconsistent results.

The method was found more rapid and exact, if not more accurate than the standard assay procedure. It was concluded that the method may be substituted for the official assay, or adopted for these official alkaloids that do not have assay procedures included in their monographs.

BERBERINE

543.8:547.978.1:582.675.3

70. Berberine from Berberis barandana Vidal. Maria B. Santos. Diliman, Rizal, University of the

Philippines, 1953. 53p. illus. 131 refs. (Thesis, M.S. in Pharmaceutical Chemistry)

3.09% berberine was obtained by percolation with alcohol of about 1,300 g powdered air-dried root trunk of *Berberis barandana* Vidal, known by Igorots as "bagis". It was identified as berberine hydrochloride by the color reaction with chlorine water, acetone compound, and the formation of its salts, namely: the iodide, aurichloride, sulfate, nitrate, picrate, reineckate, and anhydrotetrahydroberberine.

543.8:547.978:582.675.3

71. The distribution of berberine in Philippine medicinal plants. Maria B. Santos and Alfredo C. Santos. Journal of the Philippine Pharmaceutical Association, April 1953, v.40, no.4, p.117-120. illus. 4 refs.

Berberis barandana Vidal, locally known as "bagis" or "subit" was found to contain tertiary and quaternary bases. 3.09% berberine was isolated from the quaternary base, and was converted into salts. An appreciable amount of secondary quaternary bases was also precipitated as iodides from the mother liquor of berberine hydrochloride.

TANNIN

543.8:547.98:582.883

72. A phytochemical study of the leaves of *Psidium guajava* with particular reference to the tannin content. Silveria V. Tamayo. Manila, Centro Escolar University, 1950, 44p. tables. illus. 23 refs. (Thesis, M.S. in Pharmacy)

The astringent property of *Psidium guajava*, popularly known as guava, which makes it a good remedy for diarrhea is attributed to its tannin content. By analytical test of its leaves, its tannin content was classified as phloba-phene-producing tannin according to the Perkin-Everest Classification. Evaluation of results of the variation of the tannin content of the leaves, barks, and fruits indicates that the mature leaves and barks yielded higher tannin content than the young ones. The leaves, bark, and fruit were also found to contain soluble carbohydrates, saponaceous matter, resin and traces of essential oil. No alkaloid was detected. Extraction with selective organic solvents yielded a total of 25.80% extractives. Water gave the highest percentage of extractive, representing the soluble carbohydrates and part of the tannin not extracted by alcohol.

Tabulated results of the evaluation of the tannin content of barks of some Philippine trees is also presented.

BOTANY

581.4:582.6

73. Report on the syllabus of morphological and systematic pharmacognosy. Felipe M. Salvosa. Journal of the Philippine Pharmaceutical Association, June 15, 1948, v.35, no.6, p.221-230. 7 refs. (Paper read before the 1947 Philippine Pharmaceutical Association Annual Meeting and Convention held at Cebu City on Dec. 31, 1947)

A description of the morphological characteristics of trees and a tabulated results of the taxonomic survey of about 276 species (131 native and 145 exotic or foreign) of drug-yielding trees, representing 174 genera (118 native and 56 introduced) and 58 families (1 gymnosperms and 57 angiosperms) of the class *Dicotyledoneae*, are presented. Drugs are produced from the different organs of the tree: the bark of either the root or stem and its branches, the wood (sapwood or heartwood) of the trunk, the leaves, flowers, fruits, and seeds. Results of the survey showed that about 35 species produce drugs in the bark of the root, 148 in the bark of the stem and branches, 65 in the wood trunk, 83 in the leaves, 15 in the flowers, 66 in the fruits, and 58 in the seeds.

581.4:582.635.3
74. A pharmacognostical study of the leaves and roots of Ficus pseudopalma Blanco. Zenaida C. Peralta. Graduate and Faculty Studies (Centro Escolar University), 1960, v.11, p.69-109. plates. 21 refs.

The leaves and roots of Ficus pseudopalma Blanco, locally known as "lubi-lubi" or "niog-niogan", were collected from Antipolo (Rizal). Microchemical tests of the leaves revealed the presence of protein, sugar, starch, tannin, and traces of fatty globules. Alkaloids and saponins were not found. The powdered leaf (the drug) contained parenchyma cells, 15 to 33.75 microns long and 3.75 to 30 microns wide; parenchyma cells with chloroplastids; simple to 4-compound starch grains and starch grain aggregates, protein granules and tannin masses; fragments of isolated pitted, annular and spiral vessel; scalariform-reticulate elements; undulated, tubular epidermal cells with or without stomata; laticiferous cells; calcium oxalate; rosette aggregate or monoclinic prismatic crystals; crystals of various shapes; and microcrystals either occurring freely or are contained in secretory cells. The pharmacopoeial properties of the drug mentioned in the proposed pharmacopoeial monograph, are: moisture content, 10.88%; total ash, 15.02%; acid-insoluble ash, 6.89%; acid-soluble ash, 8.13%; and crude fiber 28.71%. No foreign organic matter was found.

The results of the microchemical tests of the fresh root and the latex revealed the presence of small amounts of alkaloids, fatty globules and much of protein, starch, sugars, and tannin. No saponin was obtained. The latex also contained small amounts of oxalic, citric, tartaric, and malic acids; starch grains; resinous materials; fats and waxes; and peroxidase, but no catalase. Microscopic examination of the latex showed numerous masses of starch grains, protein granules, crystals, tannin masses and other minute particles. The powdered root consisted of wood fibers; parenchyma cells; portions of isolated pitted annular and spiral vessels; scalariform-reticulate elements; layers of thick-walled suberized cork cells; phloem fibers; laticiferous cells; parenchyma cells with tannin masses; protein granules; simple to 4-compound starch grain and starch grain aggregates; calcium oxalate rosette aggregates or monoclinic prismatic crystals; crystals of various shapes and crystals either occurring freely or contained in secretory cells.

Morphological description of both the leaf and roots is also given.

581.4:582.757.2
75. A morphological study of Euphorbia hirta Linnaeus. Epifania Bunyi-Plana. Manila, Centro Escolar University, 1952. 53p. illus. 31 refs. (Thesis. M.S. in Pharmacy)

A description of the morphology and anatomy of the stem, leaf, root, flower, and leaf of Euphorbia hirta Linn. and its botanical characteristics is given. The plant locally known as "golondrina" or gatas-gatas" was obtained from Taytay (Rizal) and the C.E.U. Garden. A review of the pharmacological studies revealed that it has a depressant action on the heart and respiration and produces a relaxation of the bronchioles by its central action. It is a local irritant and is used in spasmodic conditions of the respiratory tract and in dyspnea due to asthma and emphysema. In the Philippines, the leaves are mixed with Datura metel leaves and flowers in the preparation of asthma cigarettes; its latex is prescribed in asthma and is considered aesthetic. A fluid extract of the plant is a remedy for acute and chronic dysentery; a tincture is anthelmintic and is a remedy for ringworm; a decoction is used for gonorrhea; as a diuretic and as an enema for constipation. The whole plant is

used as an antidote, sedative, and is considered haemostatic and soporific.

581.4:582.878
76. Morphological studies on Philippine drugs. III. Ceriops tagal (Perr.) C.B. Rob bark. Jesusa A. Concha, Angelina C. Belisario, Patrocinio Valenzuela and Alfredo C. Santos. Journal of the Philippine Pharmaceutical Association, Aug.15, 1957, v.44, no.8, p.263-275. illus. 30 refs. (Paper read during the Scientific Meeting of the 1957 Annual Meeting and National Convention of the Philippine Pharmaceutical Association held in Iloilo City)

The bark of Ceriops tagal (Perr.) known locally as "tañgal" was obtained from Boac (Marinduque). The gross morphology, histology, and distinctive features of the drugs are described to serve as an aid in its identification. The medicinal uses of the bark are as astringent and haemostatic; its lotion is used in ulcers as a substitute for quinine; as a substitute for adulterant for black catechu; and recently, a decoction from the bark was reportedly used as a treatment for diabetes.

581.4:582.893
77. The morphology of Centella asiatica (Linn.) Urban. Cecilia S. Vargas and Maria Pastrana-Castrence. Journal of the Philippine Pharmaceutical Association, (1) May 15, 1956, v.43, no.5, p.153-179. illus; (2) June 15, 1956, v.43, no.6, p.199-220. 61 refs. (Thesis. M.S. in Botany. UP Graduate School. Paper read at the 1956 National Convention of the Philippine Pharmaceutical Association held in Baguio City on April 5-7)

A brief review of previous investigations on Centella asiatica Linn., or "takip-kohol", covering nomenclature, medicinal and microchemical properties, and anatomical features is presented.

The results of the histochemical tests of the different organs of the plant indicated the presence of alkaloids, starch grains, protein, fatty oils, and tannins. No alkaloids were found in the rhizomes, roots and leaves.

A proposed pharmacopoeial monograph for Centella asiatica, as a result of the study, is presented.

581.4:582.998 615.777
78. A pharmacognostic study of Artemisia vulgaris Linn. Dolores A. Japson. Manila, University of Santo Tomas, 1959. 48p. illus. tables. 14 refs. (Thesis. M.S. in Pharmacy)

External and internal morphological studies of Artemisia vulgaris Linn., locally known as "damong Maria", were made. The therapeutic uses were enumerated, most important of which are its uses as a vulnerary, as a decoction, and as infusion.

The powdered leaf has a distinct aromatic odor which could be due to the volatile oil present in the leaves. It appeared to be composed mostly of the 2-armed and the long and pointed non-glandular hairs, of ellipsoidal starch grains, of fragment of tracheae and vessels, and of pollen grains.

Microchemical tests for insulin indicated its presence in small amounts in the root and moderate amounts in the rhizome, but no trace in the stem and leaves. Traces of alkaloids were detected in the stem, leaves, root, and rhizome. Starch was found present in small amounts in the stem and leaves, but none was found in the root and rhizome. Tannin was observed present in small amounts in the root, stem, rhizome, but not in the leaves. The stems and the leaves contained more volatile oil than the roots and the rhizomes.

581.4+581.8:582.949.2
79. Histological and pharmacognostical studies of three species of Coleus (Coleus amboinicus Lour. Coleus bluemi Benth. Coleus pumilus Blanco). Lilian Velasquez-Cruz. Manila, University of Santo Tomas, 1951. 75p. illus. 24 refs. (Thesis.

M.S. in Pharmacy)

Coleus amboinicus Lour., "oregano", *Coleus blumei* Benth, "mayana", and *Coleus pumilus* Blanco, "malamayana", which are grown in Manila have been reported to have medicinal values and have been used to cure certain ailments. "Oregano" is useful against insect bites; it alleviates coughing; it is an anti-dyspeptic, an antiasthmatic and a carminative. "Mayana" has curative effects on headache and bruises.

The complete morphology of each species is discussed and the results of the microscopic anatomical studies of their blades, stems and roots are described. The elements commonly found in the powdered form of the drugs were those of the vascular bundles, such as vessels of the annular and spiral type and wood fibers, parenchyma cells, non-glandular trichomes and epidermal cells. In "oregano" powder, stone cells were also found.

581.8:582.937

80. Studies on Rauwolfia vomitoria Afz. Magdalena Cantoria and Heber W. Youngken. Journal of the Philippine Pharmaceutical Association. Oct. 15, 1955, v.42, no.10, p.235-259. map, illus. 28 refs. (Part of a dissertation submitted by Magdalena Cantoria to the Massachusetts College of Pharmacy in parial fulfillment of the requirements for the degree of M.S. in Pharmacy)

The root of *Rauwolfia vomitoria* Afz. is used as a source of reserpine in the U.S. and in Europe. A description of the plant is given, based on 6 herbarium specimens obtained from the U.S. National Museum, S. B. Penick & Company, and East African Herbarium. The samples of roots used were obtained from the Belgian Congo and the powdered drug (roots from the Riker Laboratories, Inc., Los Angeles (California). Histological studies of the leaf revealed the presence of numerous rosette crystal aggregates and a few prismatic crystals of calcium oxalate in the parenchyma cells. Occasional spheroidal cells containing rosette aggregates of calcium oxalate were also found in palisades region and in the spongy parenchyma. The band of cubical to horizontally elongated cells extended in the parenchyma of the midrib contained numerous chloroplastids. The leaf gave a vein islet number of 2.5-5, a stomatal index of 5.56-6.70, and a palisade ratio of 1.55-2.10.

A histological description of root is also given. The young roots closely resembled the mature ones in general structure, except that the cells in the young are less lignified than in the old roots. Microscopical study of the powdered root showed: fragments of starch-containing wood parenchyma cells; fragments of fibers; thin-walled parenchyma cells containing starch; monoclinic crystals of calcium oxalate up to 47 μ long; fragments of vessel elements and tracheids; characteristic stone cells; and cork cells.

581.8:582.937

81. Histological study of the bark of Plumiera acutifolia Poir. Emma P. Maniquis. Manila, Centro Escolar University, 1952. 53p. illus. tables. 23 refs. (Thesis. M.S. in Pharmacy)

"Kalachuche" is known for its medicinal value as well as for its cosmetic and ornamental uses. The latex and the decoction of the bark are used as purgative, emmenagogue, and febrifuge. A decoction of the leaves also serves as lotion for cracks and eruptions of the sole of the feet. The leaves, in infusion or in extract form, is reported to be an effective cure for asthma. The leaves, when heated slightly and applied on the skin, can dispel swelling.

Stem barks from two varieties of "kalachuche", one which flower is yellow color in the center and white at the outer, and the other which flower is purple,did not give distinguishing differences in both their histological and pharmacognostical aspects.

PHARMACOPEIAS

615.1

82. Medicina domestica. William Buchan. Manila, Imprenta y Libreria de Praxedes Sayo Vda. de Soriano, 1916. 215p. illus. (Translated into Tagalog by Rosendo Ignacio)

Consisting of 9 chapters, the book contains invaluable information on household remedies for different diseases and ailments. A chapter is devoted to the discussion of about 45 local medicinal plants. Pertinent information on the plants are given such as scientific names or synonyms, local names, origin, occurrence and proper time of collection, plant part used and its curative values, and the drug preparation.

Different kinds of drugs are discussed according to their main action and uses, such as emolients, stimulants, diuretics, tonics, tranquillizers, antispasmodics, expectorants, vermifuges, etc. The causes, signs, and remedies of different ailments ranging from mild fever to more serious cases of cholera, dysentery, or diabetes, are also discussed. Emergency measures in cases of poisoning, snake bites, drowning and burns are given.

Included also are some pointers on: (1) how to take pulse rates and what they indicate; (2) proper care of the sick; (3) proper diet for the sick.

615.1:582

83. Medicinal plants of the Philippines. Eduardo Quisumbing. Manila, Bureau of Printing, 1951. 1234p. 638 refs. (Dept. of Agriculture and Natural Resources. Technical Bulletin 16)

The book contains information on 858 species of which 63 species are recognized in various pharmacopeias. Materials were collected since 1918 and identified. Actual field notes taken by the author on plants used by "herbolarios" are incorporated. Other sources of information are the published works of the late Dr. Leon Ma. Guerrero and available literature in the Scientific Library of the Bureau of Science (now the Division of Documentation, National Institute of Science and Technology), National Library (now the Bureau of Public Libraries), U.P. Library, Library of the St. Agustin Church and other private libraries. The Engler and Prantl system was followed in the arrangement of families and genera, except in algæ and fungi where the genera are arranged alphabetically for convenience.

The discussion of each species includes their scientific names, synonyms, origin, and geographic distribution followed by a brief diagnostic description. A paragraph is devoted to the active constituents, pharmacological action, and general characteristics of the crude drugs. All recorded therapeutic uses and pertinent data on the drugs, such as feel, taste, and smell, their uses as adulterants, process of preparation and dosage, are also given. Appendices on cyanophoric plants, miscellaneous economic algæ, edible and poisonous fungi, and plants reported as causing asthma or hay fever, likewise, indices to plants according to therapeutic properties, specific diseases, local or common, and scientific names are included to facilitate selection of plants.

615.1:582.26

84. Pharmacopoeial properties of agar from 3 Philippine seaweeds. Magdalena Cantoria, Patrocinio Valenzuela and Gregorio T. Velasquez. Journal of the Philippine Pharmaceutical Association, July 15, 1951, v.38, no.7, p. 187-193. illus. tables. 5 refs. (Paper read at the scientific meeting of the 1951 annual meeting and national convention of the Philippine Pharmaceutical Asso-

ciation held in Davao City on April 23, 1951. Part of a dissertation submitted in April 1951 by Magdalena Cantoria to the Graduate School of the University of the Philippines in partial fulfillment of the requirements for the degree of M.S.)

Agar was obtained from local seaweeds *Hypnea musciformis* (Wulf) Lam var., *Hypnea hippuroides* (Kuetz) Web. v. B., *Gracilaria canaliculata* (Kuetz) Sonder, and *Gracilaria lichenoides* (L.) Gmel., by extracting with water and boiling under reflux and the resulting liquid frozen, thawed and dried.

The results of the analysis revealed that the agar obtained has high ash content and high viscosity. *Hypnea* and *Gracilaria* agars have high setting points, 43.5-44°C and 43.5°C respectively. Hypnea agar met the U.S.P. melting point requirement while the 2 *Gracilaria* agars did not. As a whole the agars obtained do not conform with the U.S.P. XIV specifications. It was concluded that an improved method of extraction would yield a better quality of agar.

615.1:615. 32

85. The Philippine medicinal plants as materia media for our medical practitioners. Faustino Garcia. Journal of the Philippine Pharmaceutical Association, May 15, 1950, v.37, no.5, p.211-213. 10 refs. (Paper read before the Bulacan Medical Society at its first scientific meeting of the year 1950, held at Solana St. corner Sta. Potenciana, Walled City, Manila)

The pharmacologic and therapeutic indications of four Philippine medicinal plants: *Datura alba*, "talumpunay"; *Lagerstroemia speciosa*, "banaba"; *Alstonia scholaris*, "dita"; and *Wikstroemia ovata*, "salago", are discussed.

"Talumpunay" which, according to Hesse, contains 92% hyoscine, 6% hyoscyamine, and 2% atropine, is identical to atropine with reference to its peripheral actions. Extracts from its leaves and flowers were found to diminish or stop salivary secretion, accelerate heart rate, relax or lessen intestinal movements, and dilate constricted bronchial muscles.

"Banaba" has been found to have hypoglycemic effect and antidiabetes mellitus property similar to insulin.

A 2-3 grams daily of the powdered bark of "dita" was found to relieve patients of malarial fever and prevent its relapse and restore the patient's strength.

"Salago" has been found to have cathartic effect.

The establishment of an Institute was suggested, to help in the discovery of more Philippine medicinal plants.

615.1:615.41

86. Medicinal plants used by ethnic groups of the Philippines: their preparation and application. Mamerto D. Sulit. Journal of the Philippine Pharmaceutical Association, (I) Sept. 15, 1958, v.45, no.9, p.275-284; (II) Oct. 15, 1958, v.45, no.10, p.308-318; (III) Nov. 15, 1958, v.45, no.11, p.343-358. illus. 19 refs.

A list of 48 plant families, 80 genera and 90 species (of which 19 species are recognized in various pharmacopeias) used by ethnic groups is presented. The nomenclature of each species is given including synonyms, scientific names and local names of each plant as known to the ethnic groups. A paragraph is devoted to the preparations, applications, and uses of the medicinal plants.

615.1:631.5

87. Culture and improvement of Philippine medicinal plants. Nemesio B. Mendiola. Journal of the Philippine Pharmaceutical Association, Sept. 15, 1948, v.35, no.9, p.377-386.

The 800 species of Philippine

medicinal plants are generally grouped into 2: (1) those which are claimed to have medicinal values but are, from the scientific standpoint, either of doubtful or of no value at all, and (2) those which are official in pharmacopeias. A list of 116 plants of the latter group is presented of which there are 33 species grown as crops, 49 produced under culture, and 34 wild species. Another list of 54 plants yielding volatile oils of which there is 1 species grown as crop, 27 species produced under culture, and 20 wild species. A third list presents 20 plants not included in pharmacopeias but recognized locally of which there are 2 species grown as crops, 18 produced as cultures, and 8 wild species. The methods of cultivation and improvement of these plants are discussed.

Tabulated results of the analysis of new citronella grass strains and parent is also cited.

PHARMACY

615.41

88. The method of manufacture and control of press-coated tablets of pepsin, papain and pancreatin compound. Natividad S. Velasco. Manila, Manila Central University, 1958. 76p. 40 refs. (Thesis. M.S. in Pharmacy)

A formula for a 2-layer coated tablet essentially to aid in digestion is offered; it consists of pancreatin, pepsin, papain and ignatia powder. The method of manufacture involves press coating, using the single punch electrically run Stoke's tablet machine for the core and the Stoke's single punch hand machine for the second layer. The pancreatin with the standard fillers are incorporated in the core which is intended to be dissolved in the small intestine on the time-delay disintegration principle. The pepsin, papain and ignatia powder are incorporated in the second layer which is intended to be disintegrated in the stomach. 40% shellac in alcohol is used for enteric coating and dicalcium phosphate is used as final coating.

The results of the assay of the tablets following official and semi-official procedures show that the tablets met all the requirements for press-coated tablets with little deficiency in the control of the weight. The average disintegration time of the tablet was found to be 2 hrs.

615.41

89. Flavoring pharmaceutical syrups. Rafael Hizon and Amorita Villegas-Castillo. Journal of the Philippine Pharmaceutical Association, July 15, 1958, v.45, no.7, p.203-215. tables. (Paper read at the scientific meeting of the 1958 Philippine Pharmaceutical Association meeting and national convention held in Cebu City, April 24-26)

Tabulated results of the taste tests made to determine the disguising efficacy of 17 syrups namely: simple syrups, syrups of citric acid, cinnamon, glycyrrhiza, sarsaparilla, ginger, fragaria, orange, anise, eriodictyon, cacao, wild cherry and vanilla, and syrups with artificial or imitation flavoring, banana, strawberry, cherry and cinnamon, on a cough mixture with pyrilamine maleate and NH_4Cl as the basic ingredients are presented. The syrups of sarsaparilla, glycyrrhiza, cacao, eriodictyon and artificial strawberry were found effective for flavoring the cough mixture under investigation. The syrups of fragaria, artificial strawberry and cacao were the best vehicles to disguise NH_4Cl in the presence of other unpleasant ingredients. On the other hand, the syrups of glycyrrhiza, wild cherry, artificial banana and artificial cherry were the best in disguising its taste if it were alone. The bitter taste of pyrilamine with other ingredients was best disguised with syrups of eriodictyon, cacao and artificial strawberry, while the syrup of artificial cherry was found the best for masking the bitter-saline taste of a combination of pyrilamine maleate-NH_4Cl.

615.41:308
90. Survey of some official pharmaceutical preparations as sold in different drug stores. Josefina C. Lugay. Journal of the Philippine Pharmaceutical Association, Aug. 15, 1955, v.42, no.8, p.165-173. tables. (Paper read during the Scientific Meeting and Annual Convention of the Philippine Pharmaceutical Association held in Naga City on April 15, 1955)

Samples of tincture of iodine, Camphor liniment, Camphorated opium tincture and Mercurochrome solution obtained from different drugstores were assayed according to the U.S.P. and N.F. procedures to determine if they comply with the requirements of their respective compendium. Of the 40 samples of the tincture of iodine, only 17.5% complied with the U.S.P. XIV requirements for iodine content; 17.5% were below the official standard and 65% contained more than what is required. It was found that the KI was used instead of the required NaI. Out of the 40 samples of Camphor liniment, 12% conformed with the U.S.P. and 2 samples were above the standard. All the samples of camphorated opium tincture were within the U.S.P. standard although varying in their morphine content. 40% of the samples of mercurochrome solution contained the required merbromin and 12% were above standard. However, the mercury and bromine contents of the merbromin were within the N.F. specifications.

615.41:378.7:615
91. The role of the Colleges of Pharmacy in the progress of pharmaceutical manufacturing in the Philippines. Patrocinio Valenzuela. Journal of the Philippine Pharmaceutical Association, Nov.15, 1953, v.40, no.11, p.390-393. 4 refs. (Paper read at the third quarterly scientific meeting of the Philippine Pharmaceutical Manufacturer's Association, Oct. 24, 1953. Manila)

In 1951, the U.P. College of Pharmacy offered a 5-year curriculum leading to the degree of Bachelor of Science in Industrial Pharmacy. The curriculum is so constructed as to enable the holders of this degree to become Chemical Engineers upon completion of an additional 34 units constituting the 5th year of chemical engineering curriculum and vice-versa; a pharmacist upon completing the required two additional years can also hold the degree of Bachelor of Science in Industrial Pharmacy.

The training for isolation, purification, formulation, manufacture, control marketing of new drugs are among those taught and the studies in quality control of raw materials, manufacturing process and the finished product are looked into. Pharmaceutical research and development are considered valuable in training students to become best qualified in the field. It was pointed out that the offering of practical training and experience in laboratories of pharmaceutical manufacturers will help advance the course in industrial pharmacy.

Appended is a 5-year curriculum leading to the degree of B.S. in Industrial Pharmacy and a list of subjects to be completed by holders of B.S. in Chemistry, Chemical Engineering, Mining Engineering degrees in order to be eligible for the B.S. in Industrial Pharmacy.

615.41:543.8
92. Application of Baljet reaction to digitalis and related drugs. I. Digitalis and its preparations. II. Preliminary study of Strophanthus and Nerium oleander Linn. Gloria D. Manalo. Journal of the Philippine Pharmaceutical Association, (I) May 15, 1954, v.41, no.5, p.183-188. table, graph. 25 refs; (II) July 15, 1954, no.7, p.265-273. tables, graphs, illus. 17 refs.

The Baljet reaction was applied in the chemical assay of Digitalis powder, tincture and tablets, Strophanthus and *Nerium oleander* "adelfa". The potency was expressed in terms of U.S.P. reference digitalis and reference ouabain. In the assay of digitalis tablet, it was found that lactose increased its potency. It was suggested that whenever lactose is used as diluent, its amount should be kept at a minimum, and that such tablets be carefully stored in moisture-proof containers.

Strophanthus and "adelfa" showed slight deviation from Beer's law with U.S.P. digitalis reference but not with ouabain. Digitalis reference standard may be used for low concentrations. The results of the assay showed that the rose pink variety of "adelfa" contained more glycoside in the bark than in the leaves and vice versa for the light pink variety. The potency of "adelfa" (in terms of U.S.P. digitalis reference) appeared to be higher than that of digitalis.

It is suggested that further study of the method and a parallel biological assay for other varieties of "adelfa" be made.

615.41:545.844

93. Chromatographic adsorption analysis and its application to pharmaceutical preparations. Lourdes Arreola. Journal of the Philippine Pharmaceutical Association, Nov. 15, 1949, v.36, no.11, p.519-522. 11 refs. (Paper read before the Scientific Section held during the 1949 annual meeting and convention of the Philippine Pharmaceutical Association held in Iloilo City on May 6, 1949)

Chromatographic adsorption analysis is a method for the detection, identification, isolation, and purification of substances. The method is based on the differences in the capacity of substances to be adsorbed on simple adsorbents. This difference in adsorbabilities results in the formation of zones or bands which may then be sectioned. With proper solvents, the substance is eluted from the adsorbent so that mixtures can be easily resolved into their different constituents. With the discovery of other good adsorbent materials this method found wider application in chemistry. The pharmaceutical applications mentioned are: determination of origin of drugs and tinctures, identification and detection of adulteration of preparations from plant drugs, identification of homeophatic preparations of hydrastis, *Berberis vulgaris*, *Berberis aquifolium*, colombo and cholidonium, purification of ether, separation or determination of alkaloid contents, and others.

615.41:582.951.4(083)

94. A note on the oleoresin of Philippine Capsicum. Lilia E. Pangilinan. Journal of the Philippine Pharmaceutical Association, Oct. 15, 1950, v.37, no.10, p.399-401. 4 refs. (Paper read before the scientific section of the 1950 annual meeting and convention of the Philippine Pharmaceutical Association held in Baguio City on May 19, 1950)

The preparation of oleoresin from *Capsicum frutescens*, locally known as "sili", is described. An effective preparation(capsolin) for rheumatism, neuralgia, sciatica and sore muscle, in which oleoresin was incorporated was prepared:

Oleoresin of capsicum - 10 g
Alcholic extractives of
  belladonna - 3 g
Menthol - 0.8 g
Methyl salicylate - 5 g
Chloroform - 5 g
Sassafras oil - 5 g
Camphor and soap liniment
Red sandal wood liniment/each
  q.s. - 100 g

615.41:612.015.6

95. A study on the deterioration and stabilization of ascorbic acid in aqueous solution. Jose Crisostomo Diguangco. Manila, University of Santo Tomas, 1952. 63p. tables. 36 refs. (Thesis. M.S. in Pharmacy)

Crystalline ascorbic acid was used in this study together with 0.1N iodine solution, 0.1N sodium thiosulfate solution, 10% sulfuric acid and starch test solution prepared as directed. Na_2CO_3, NH_4OH, NaOH, Na_3PO_4, thiourea, CO_2, and NaCl were used as stabilizers or anti-oxidants.

The solutions were colorless immediately after their preparation, but developed into a very light cream color after standing for a few hours. The color of the solution containing thiourea became very light yellow, those with Na_3PO_4, NaOH, and NH_4OH yellow, and that with Na_2CO_3 dark yellow. The sour taste in the solutions was overcome by adding syrup to make them palatable. The solutions were odorless.

On the 3rd day after the preparation of the solutions, molds became macroscopically visible; solutions with syrup contained more molds than the rest. Rapid deterioration of the ascorbic acid content of the solutions were noted during the 1st 2 days but proceeded moderately thereafter. Deterioration was faster in ordinary containers than in amber-colored containers.

Thiourea was found to be the best preservative, limiting the decomposition to a maximum of 7.4%. If placed in a colored container, decomposition was limited to only 4.01%. CO_2 was found to be a good anti-oxidant allowing a maximum deterioration of 11.36% after 10 days, if air is kept from the solution. However, its use in preserving solutions intended for oral admission, containers of which are opened from time to time, was not advised. The best inorganic substance found to control the decomposition was NaCl, followed by Na_2CO_3 and by Na_3PO_4. Of the alkalies used, NH_4OH showed better keeping qualities than NaOH. For every gram of ascorbic acid only 0.04 g. was lost in 100 cc of solutions containing syrup while 0.09 g was lost in solutions without syrup. The percentage of decomposition for every solution of ascorbic acid used from the 1st to the 10th day is tabulated.

The discovery of ascorbic acid, synthesis, natural sources, occurrence and properties, uses, daily requirements and dose, review of literature on the determination of ascorbic acid, stabilization, analysis of ascorbic acid content, etc., are presented.

615.41:612.015.6(083)

96. A comparative study on the stability of thiamine and riboflavin in aqueous and freeze-dried vitamin B-complex preparations. Purificacion S. Suaco, Rosalinda D. Nolasco and Josefina Tan Torres. Journal of the Philippine Pharmaceutical Association, Nov. 1953, v.40, no.11, p.381-385. table. 4 refs. (Paper read during the scientific meeting on April 18, 1952, in connection with the 1953 annual meeting and convention of the Philippine Pharmaceutical Association)

Vitamin B-complex solution was prepared with a pH of 5.2 using the following formula: riboflavin 5 mg, niacinamide 50 mg, folic acid 1 mg, buffer 0.1 cc, calcium pantothenate 5 mg, pyridoxine hydrochloride 5 mg, vitamin B_{12} 6 mg, thiamine hydrochloride 20 mg, distilled water q.s. 1 cc. Apparent decomposition in the aqueous form was indicated by slight sedimentation within a week, which later became a copious precipitate after 6 months. Deepening of color was also noted. In the lyophilized form, no change in the physical appearance was observed, whether dried or reconstituted. Tabulated results indicate that the potency of both thiamine and riboflavin in the aqueous form diminished considerably with time, whereas it was maintained in the lyophilized form.

It was concluded that lyophilization of pharmaceutical preparations is best indicated for drugs whose potency or stability cannot be maintained in solution.

615.41:615.32

97. Local raw materials for manufacture of drugs. Concepcion Aranda and Joaquin Marañon. Journal

of the Philippine Pharmaceutical Association, June 15, 1958, v.45, no.6, p.169-173. 9 refs. (Part of a dissertation submitted by C. Aranda to the CEU Graduate School in partial fulfillment of the requirements for the degree of M.S. in Pharmacy)

Examples of raw materials which have been found of value are: (1) "talumpunay", Datura alba Nees or D. fastuosa Linn., which contains mydriatic alkaloids and can be used for plasters and cough mixture preparations; (2) alkaloids of "kalimatas", Phaeanthus ebracteolatus (Presl.) Merrill, for high blood pressure; (3) "adelfa" Nerium oleander Linn., as a heart stimulant; (4) Rauwolfia samarensis Merr. and R. amsoniaefolia A.D.C.; (5) "acapulco" Cassia alata L., for ringworm; (6) coconut oil; (7) "sahing", Manila elemi; (8) Strychnos ignatii Vidal, St. Ignatius bean; (9) "dudu-dudu" Hydnocarpus alcalae C. DC.; and (10) "golondrina" Euphorbia hirta Linn.

615.41:615.32

98. Determination and stabilization of pocion gomosa. Lydia C. Azada. Manila, Centro Escolar University, 1951. 71p. graphs, tables. 25 refs. (Thesis. M.S. in Pharmacy)

Pocion gomosa is a galenical preparation made by dissolving gum acacia in water and adding simple syrup and orange flower water to the resulting colloidal solution. It is used as a diluent in the preparation of liquid medicinal substances for the purpose of disguising the tastes.

8 different preparations of pocion gomosa were made and their keeping qualities were noted to determine which formulas should be used for further studies on deterioration and stabilization. The conditions under which the changes in pocion gomosa were studied are: (1) duration of storage, (2) different light intensities, (3) nature of container, and (4) presence of other medicated agents. The effect of sodium benzoate, benzoic acid, ascorbic acid, sulfanilamide, halazone, chloroform, and methyl salicylate in pocion gomosa was also determined.

Results of the analyses showed that: (1) the keeping quality of pocion gomosa, without the use of any preservative, can be prolonged if gum arabic and sugar used in the preparation are of good grade and the finished product is well filtered; (2) deterioration of pocion gomosa placed in colored bottles or stored in the dark or diffused light was greater than that placed in white bottles or those exposed to sunlight; (3) the amount of reducing sugars in the preparation of pocion gomosa was directly proportional to the length of storage. This serves as a good index of the deteriorative changes observed; (4) sodium benzoate, benzoic acid, and ascorbic acid were found effective in maintaining the stability of pocion gomosa for several months; and (5) the formula considered to be highly satisfactory for pocion gomosa is as follows:

powdered gum arabic - 5 g
orange flower water - 10 cc
simple syrup -------- 20 cc
water q.s. ---------- 100 cc

615.41:615.32/.33

99. Our potentials in the preparation of medicinal and allied products. Joaquin Marañon. Journal of the Philippine Pharmaceutical Association, Aug. 15, 1950, v.37, no.8, p.338-341. (Paper read before the Scientific Section of the 1950 National Convention of the Philippine Pharmaceutical Association in Baguio City on May 19, 1950)

Three potential sources of medicinal and allied products are the abundant Philippine medicinal plants, soil microbes and other microorganisms, and the local raw materials.

Glucoside-yielding plants mentioned are the Nerium oleander L. "adelfa"; Antiaris toxicaria (Pers.) Lesch. "lata" or upas tree;

Strophanthus letei Merr.; and Thevetia neriifolia, which are known for their cardiotinic properties. Soil microbes, abundant in Philippine soils, are sources of antibiotics which may be produced here thru painstaking search. Raw materials such as rice bran which is a source of vitamin B, forest products such as Manila elemi and other resins are potential sources for drug manufacture.

Improvement in existing processes and products, development of new products, and fundamental research are the 3 suggested objectives to be taken in the industrialization program of the government.

615.41:615.371

100. Vaccine virus: method of preparation at the government serum laboratory. Paul G. Woolley. Manila, Bureau of Printing, 1904. 7p.10 plates.

The cow and carabao calves and ShangHai cattle used in the preparation are first given prophylactic dose of antirinderpest serum. They are washed with soap and water and the lower abdomens and the insides of their thighs are shaved, washed with 5% carbolic acid and then with alcohol. The animals are then dried for scarification. There are 2 methods used for scarification: the Japanese, making a checkerboard pattern of crossed lacerations and the American, making long parallel lines with no crossing. Scarification is done with utmost care to avoid hemorrhage. Serum or blood is carefully removed with a spatula and the seed virus is thereby applied and thoroughly rubbed in. The lacerated areas are then dressed with aprons until vesciculation occurs. Meanwhile, the animals are furnished with the fodder which consists of timothy or alfalfa hay, green grass, crushed cattle food, oats, or bran, and teosinte, during the incubation period.

After due incubation, the pustules are washed, dried, and the contents of the vescicles are removed with a sterile spoon and collected in sterile glasses. The vaccine is then ground and mixed with glycerine in machines. One part of virus is diluted with 4-7 parts of 60% pure neutral glycerine. The virus is then allowed to "ripen" in bottles after which it is examined for any pathogenic microorganisms before it is prepared in vials (25, 50, 100 doses) or capillary tubes (1 or 5 doses) for distribution.

615.41:615.7:582.752.2

101. Utilization of Manila elemi (sahing) for cataplasms and chewing gum. Soledad G. Trinidad. Journal of the Philippine Pharmaceutical Association, Aug. 1953, v.40, no.8, p.279-286. 16 refs. (Paper presented during the scientific meeting of the 1953 annual meeting and convention of the Philippine Pharmaceutical Association on April 18, 1953)

Manila elemi, "sahing", or "brea blanca" is an oleoresin obtained from the bark of Canarium lusonicum (Blume) Gray, locally known as "pili" tree, which abounds in northern Luzon, Mindoro, and Masbate.

The procedure employed in the preparation of cataplasms using Manila elemi as the main ingredient is described. Considered the best among formulas prepared is the following: Manila elemi 15 g, glycerine 40 cc, clay 50 g, elemi oil 10 cc, turpentine oil 60 cc, and "achuete" extract 4 cc. The cataplasm prepared was soft, pliable, and the texture was smooth and fine. It dried faster than Numotizine and was found easy to remove from the skin without leaving an unpleasant sticky feeling. When applied on the skin, it produced moderate heat.

Another preparation, chewing gum, using Manila elemi, as the gum base was undertaken. The formula which also contains resin, wax, sugar (brown), glucose flavor and water was found satisfactory.

A review of the literature on

Manila elemi is given covering the method of collection, purification of oleoresin, uses, and the chemical composition.

615.41:615.7:582.951.4

102. A pharmaceutical study of medicinal plasters with particular emphasis on Emplastrum datura. Lourdes Talag Echauz. Journal of the Philippine Pharmaceutical Association, Dec. 1953, v.40, no.12, p.425-429.

A survey of the various formulas used in the preparation of the plaster of belladonna, and the various local materials which may be substituted for belladonna in the preparation of medicinal plasters, indicates that *Datura alba* is an excellent substitute for belladonna. The formulas for the two general types of plasters are offered. For plasters which do not require heating: extract of datura, 5 cc; beeswax, 15 g; Manila elemi, 5 g; turpentine oil, 6 cc; peanut oil, 5 cc. For plasters which require heating: (1) extract of datura, 5 cc; beeswax, 7.5 g; Manila elemi, 5 g; synthetic rubber, 5 g; kerosene, q.s.; (2) extract of datura, 30 cc; lead monoxide, 4 g; coconut oil, 5 g; resin, 2.5 g; hard soap, 0.5 g; (3) extract of datura, 10 cc; lead monoxide, 4 g; olive oil, 8 g; distilled H_2O, 4 g; rosin, 1.5 g; hard soap, 0.5 g; (4) extract of datura, 6 cc; rubber latex, 6 g; benzol, q.s.

Synthetic rubber and lead oleate plasters were found to be the the best bases for the preparation of datura plaster.

615.41:615.72:616.2

103. The methods of manufacture and control of Yap's asthma powder, Yap's asthma cigarettes, syrup viferosyl, elixir I.Q.S. Rosario Yap. Manila, Manila Central University, 1953. v.p. 42 refs. (Thesis. M.S. in Pharmacy)

Yap's asthma powder and cigarette are similar to Jofel's asthma powder and cigarette manufactured by Jofel's Laboratory. The modified asthma powder formula is 70 parts *Datura metel*, locally known as "talong-punai", 10 parts *Blumea balsamifera*, locally known as "kalibura", 10 parts *Premna odorata* locally known as "alagau", 10 parts *Eucalyptus tereticormis*, or eucalyptus, and 15 parts KNO_3. Asthma cigarette formula is 60 parts *Datura metel*, 5 parts *Blumea balsamifera*, *Premna odorata*, KNO_3, and excipient and softening agents, q.s. 100 parts. A crude cigarette roller was used in the preparation of the cigarette using cotton filter and a drop of menthol solution. It was found that cotton filter prevents the desired alkaloid from reaching the tissues for its curative effects. Asthma powder gave an average total alkaloid content of 0.201% as determined according to British Pharmacopeia (1932). Clinical trials on asthmatic patients at the V. Luna General Hospital revealed that 1-3 inhalations of the powder stopped or relieved asthmatic attacks. The cigarette, on the other hand, gave relief within 5-10 min. after smoking 2 cigarettes; severe cases, however, required longer period of onset of cure. For recurrent attacks, it is advised to suspend asthma cigarettes after a week of use. No ill effects were observed in any case.

A modified formula for the official elixir of iron, quinine, and strychnine, N.F., is offered, in which cheaper ingredients were substituted for costly ones. The formula devised is: 17.5 g iron and ammonium citrate (instead of tincture of ferric citrachloride), 8.75 g quinine sulfate (for quinine hydrochloride), 0.175 g strychnine sulfate, 190 cc alcohol, 190 cc sucrose syrup (instead of glycerin), and 1000 cc aromatic elixir. The aromatic elixir consists of 12 cc orange spirit, 50 g $Ca_3(PO_4)_2$, 375 cc simple syrup, alcohol and distilled water, q.s. ad. 1000 cc. The elixir I.Q.S. was relatively stable and the ingredients conformed with the U.S.P. requirements. The taste and alcohol contents were the same as the official elixir. One advantage of this preparation is that it can be compounded in big quantities without the danger of precipitation upon standing or storage.

Vi-ferosyl syrup (vitaminized ferrous sulfate syrup) is effective in the prophylaxis and treatment of beriberi. The formula offered for 1 gal is: thiamine HCl 3.785 g; ferrous sulfate syrup q.s. 3785 cc. The ferrous sulfate syrup consists of 40 g $FeSO_4$, 21. g citric acid, 2 g peppermint spirits, 825 g sucrose, and distilled water q.s. 1000 g. A daily dose of 24 mg (2 teaspoonful 3 times daily) has been found to be sufficient to effect a cure in most cases. The usual average dose, however, is to be determined by the physician according to the needs of the patient. Previous experiments showed that when the dose is increased the proportion of thiamine HCl that is retained is rapidly decreased, hence, small doses are to be preferred to single large ones.

615.41:615.73:582.572.2

104. The preparation of aloes from the leaves of "sabila" (Aloe vera Linn.). Lucila Reyes Alvero. Manila, Centro Escolar University, 1956. 99p. tables, illus. 27 refs. (Thesis. M.S. in Pharmacy)

Preliminary analysis of the leaves of Aloe vera Linn., locally known as "sabila piña", collected from San Pablo City (Laguna) and Malibay (Pasay), indicated the presence of resins, glycosides, reducing sugars, traces of alkaloids, tannin, saponin, and volatile oils. The pulp contained considerable amounts of mucilage and chlorides while only the rind contained a small amount of starch. The proximate chemical composition of the rind (about 38.42% by weight of a whole fresh leaf) was determined to be: 12.66% moisture, 3.40% fat, 6.37% crude protein, 11.79% crude fiber, 13.08% ash, and 52.70% carbohydrates (by difference).

Extraction of about 266.5 g of the rind with 95% alcohol yielded about 0.275% aloes. The product was sticky and soft but hardened on standing. It contained 96.02% water-soluble extractive, 90.8% alcohol-insoluble matter, and 12.63% resin. It gave positive results to all tests for aloes, namely, Schonteten's reaction or borax test, bromine, nitrous acid, Boentrager's and nitric acid tests. Aloin, a mixture of active principles to which the purgative properties of aloes are attributed, was prepared from the product. This drug gave satisfactory results to tests for aloin. Its melting point was not determined because of the small amount of crystals obtained.

Some official pharmaceutical preparations from "sabila piña" are: Compound Benzoin tincture, Aloe and Mastic pills, Aloe tincture N.F., Aloe pills N.F., Compound Colocynth extract, Pills of Aloe and Asafetida, Pills of Aloes and Iron, Pills of Colocynth and Hyocyamus, and Compound pills of Rhubarb.

615.41:615.73:582.736

105. Pulp decoction of golden shower (Cassia fistula Linn.) as purgative for animals and men: preliminary report. P. G. Refuerzo and P. P. Chanco. Journal of the Philippine Pharmaceutical Association, Jan.15, 1947, v.34, no.1, p.3-14, tables. illus. 16 refs.

The cathartic effect of the pulp decoction of Cassia fistula (golden shower) was tested on 56 pigs, 23 goats, 4 dogs, and 7 human beings. Results show that the drug has favorable effects on men and pigs but not on dogs and goats, although the reaction is delayed as compared to castor oil. The therapeutic dose for pigs was found to be 1 g pulp/kg body weight; for man, 0.5 g. The advantage of the delayed action of the drug is that it could be given after supper to produce purgation not until morning, thereby saving the patient much discomfort during the night. Furthermore, when given along with or after an anthelmintic, it gives ample time for the latter to act on the gut worms before they are expelled.

615.41:615.76:616.6

106. The manufacture and pharmaceutical control of diuresal elixir, carbo-pecsul tablets, strychnine sulfate injection (in isotonic solution). Aurea N. Lugod. Manila, Manila Central University, 1955. 196p. tables, graphs. 81 refs. (Thesis. M.S. in Pharmacy)

The preparation of diuresal elixir, an effective diuretic and urinary antiseptic and disinfectant, is described and the action of the ingredients discussed. The formula devised is: methenamine 50 g, sodium benzoate 2 g, elixir Imperata cylindrica, locally known as "kogon", q.s. 1000 cc. The elixir Imperata cylindrica consisted of 120 cc alcohol, 200 cc glycerine, 320 g sucrose, and 1000 cc decoction of the plant. Iso-aromatic elixir was used as the vehicle instead of aromatic elixir, because it has less alcohol content. Chrysanthemum indicum, locally known as "mansanilla", was added to mask the unpleasant taste and odor of iso-aromatic elixir. The preparation gave a pH value between 7.4-8.4 and an alcohol content of about 11.50%. The NO content was 0.01724%.

Diuresal elixir is best recom--mended in cases of anuria, nephritis and cistitis or inflammation of the kidneys, urinary bladder, urethra and also against cardiac edema and coccal infections.

Another preparation described is that of carbo-pecsul tablet which is recommended in cases of gastroenteritis, diarrhea, dysenteric infections and tenesmus. The formula devised is: sulfaguanidine 130 g, pectin 0.03 g, vegetable charcoal 0.175 g, kaolin 0.165 g, starch 0.03 g, gum arabic solution 20%, calcium stearate 2%. 20% acacia solution was used as binding agent wherein 5% atlas black food color was incorporated to produce a uniformly blended color. The tabletting machine used was a Stokes Model F and the punch die used was 13/32 in. in diameter. The tablets were 1/3 in diameter and the results of the assays made are: hardness 3.5-4 kg pressure, disintegration time 20-25 min,, sulfaguanidine content 0.124 g, pectin content 0.15 g, and residue (charcoal and kaolin) 30.823%. The statistical method of quality control was employed.

A third formulation devised is that of strychnine sulfate injection in isotonic solution which rendered it less painful when administered. The parenteral is a solution of strychnine sulfate in sterile NaCl solution made isotonic with blood. The formula offered is: strychnine sulfate 11 g, NaCl 100 g, triple distilled H_2O 11 lb. The official U.S.P. or N.F. control procedures for both the raw materials and product were employed. Results of the assay made are within U.S.P. requirements; strychnine content was 0.05 g per 50 cc of the sample and the H_2O for injection was free from any pyrogens.

Strychnine sulfate injection in isotonic solution is valuable in cases of cardiac failure, shock, collapse from hemorrhage, and poisoning; it is also used as a stimulant of the respiratory system especially in some forms of pulmonary diseases.

615.41:615.777:616-002.73

107. Parenteral administration of fresh and boiled leprotic emulsions in lepers. M.C. Cruz. Journal of the Philippine Islands Medical Association, June 1935, v.15, no.6, p.319-323.

The fresh filtrate was prepared by enucleating under aseptic conditions 2 or more good-sized non-ulcerated subcutaneous nodules. These were then sliced and ground thoroughly; 10-20 cc of sterile physiologic salt solution was added. The mixture was filtered and the filtrate was injected promptly to avoid possible contamination.

The boiled filtrate was prepared by boiling subcutaneous leprotic nodules in 150-200 cc of physilogic salt solution for 2-3 hours. The nodules were then ground thoroughly and each gram of the ground materials was mixed with 20 cc of the broth or with additional physiologic salt solution. The resulting emulsion was then filtered, transferred to vaccine bottles, and sterilized in autocloves for 2 hrs. 0.5% phenol was added as a preservative. Bacterial count and stained smears were made for both filtrates.

The intravenous as well as the intramuscular and subcutaneous injections of the leprotic filtrates produced comparatively slight general symptoms. No allergic reactions were observed, except a mild attack of lepra reaction. *M. leprae* apparently lacks general and specific action. It is suggested that the effects of an autolysate or extract of *M. leprae* to both lepers and nonlepers be studied; and the possible role of the absorption of toxic substances from breaking down leprotic foci be investigated.

615.41:615.777:616-002.73

108. Comparative study of some suspending agents for use in antileprosy preparations. Angelita M. Tuason, Aurelio O. Cruz and Teresita Reyes. Journal of the Philippine Pharmaceutical Association, Aug. 15, 1958, v.45, no.8, p.235-239. tables. 9 refs. (Paper read at the Scientific Meeting of the Philippine Pharmaceutical Association Annual Meeting and National Convention held in Cebu City, April 24-26, 1958)

12 suspending agents, namely: ninol 737, ninol 713, ninol EGS, tween 80, tween 60, methocel 1500, pectin, dextran, agar, acacia, span 60, and aluminum stearate were each tried in preparing an antileprosy drug consisting mainly of DDS (diamino diphenyl sulfone) powder in peanut oil. 2% of each of the suspending agents was used. Tabulated results show that some of the agents effected marked improvement in the preparation, and resuspension was found less difficult. However, complete suspension of the insoluble drug was not effected. Ninol 737 and ninol 713 produced heights of suspension almost twice as that of the control (14 cm), being 2.8 and 3.1 cm, respectively. Tween 60 and tween 80 maintained comparatively less settling but there was usual caking of the insoluble powder and redispersion was very difficult. Methocel 1500 and aluminum stearate produced better results than pectin, dextran, agar, acacia, span 60, and ninol EGS which did not improve the suspension appreciably.

It was observed that complete suspension may possibly be accomplished with the surface-active agents.

615.41:615.779

109. Recent advances in clinically useful antibiotics. Romulo Guevara. Journal of the Philippine Medical Association, Feb. 1955, v.31, no.2, p.71-81. tables, diagrs. 10 refs. (Paper read at the Seminar held under the auspices of the College of Medicine, UP, in the Science Hall, PGH, Manila, Aug. 28, 1954)

Bicillin, commercial name for N, N-dibenzylethylenediamine dipenicillin G, called for short as DBED or DBEDP, has 2 main advantages over the usual oral penicillin preparations, namely; (1) it is not destroyed at all in any part of the GIT, and (2) it is absorbed completely. Other advantages are: it is tasteless and can easily be converted into a palatable form, and probably possesses a minimal allergenic potentiality. Oral administration of 200,000 units in tablet form every 10-12 hr can maintain a clinically satisfactory blood level. Given parenterally, a dose of 600,000 units yields penicillin in the serum for 14 days. A dose of 1,250,000 units maintains demonstrable penicillin in the serum for as long as 4 wk or 1 mo.

Both streptomycin and dihydrostreptomycin exhibit ototoxic signs, with streptomycin producing predominantly vestibular disturbances and dihydrostreptomycin producing predominantly auditory disturbances, each at a dosage of 1 g. It was found however, that a combination of the two with the dose reduced to 0.5 g each is very safe and with no apparent alteration in the therapeutic efficiency.

Carbomycin and erythromycin (ilotycin) are effective against cocci that have become resistant to other antibiotics including chloramphenicol, penicillin and tetracycline compounds. Both have broader antibiotic spectra than Group I but still narrower than Group II, thus it merits an intermediate position in the current classification.

The controversy is to whether or not chloramphenicol produces serious and fatal blood dyscrasias, especially aplastic anemia, has not been settled.

Achromycin, like aureomycin and terramycin, is a tetracycline antibiotic and, thus, should have a low toxicity, similar side-effects and properties. It is, however, claimed to be more soluble and stable than the other two. The incidence of nausea, vomiting and diarrhea in achromycin is minimal, 5.5% as compared to 10.30% of chlortetracycline and oxytetracycline. The indications and dosage should be practically the same as aureomycin and terramycin.

615.41:615.779:615.32/.33

110. Drugs from microbes and seed-bearing plants. Martin S. Celino. Manila, Bureau of Soil Conservation, 1954. 2p. mimeo.

Antibiotics are obtainable from soil microbes which abound in the Philippines. Ilotycin is one such antibiotic now derived commercially from *Streptomyces erythreus*, an antinomycete organism isolated from Philippine soil by the Ely Lilly & Co. Another organism, *Streptomyces antibioticus*, was obtained from a soil sample from Davao which yielded an antibiotic called actinomycin.

Antibiotics are also obtainable from a number of Philippine plants. An assay of 200 species of Philippine plants revealed that 50 contained antibacterial activity, 93 inhibited growth of fungi, 31 possessed both antibacterial and antifungal activities, and only 41 did not show active reactions. Lately, an antibiotic principle was isolated from the extract of "malungay" leaves; garlic orchid is another plant under study.

615.41:615.779:635.8

111. Wonder drugs from mushrooms. Patrocinio S. Santos. Philippine Health Digest, Nov. 1959, v.1, no.5, p.14-16, 33. illus.

The antibiotic research section of the Bureau of Research and Laboratories successfully screened a few of the antibiotically active local mushrooms. Among those found to inhibit both gram-positive and gram-negative bacteria are: (1) "payong ahas", *Lepiota chlorospora* Copeland; (2) "kabuteng may singsing" *Lepiota capaestipes* Fries; (3) "kabuteng punso", *Collybia albuminosa* Petch; (4) *Polyporus sulphureus* Fries, which also showed antifungal propefties; and (5) "kabuteng parang na puti", *Psalliota campestris* Fries. Those found active against gram-positive and gram-negative organisms are: (1) "kabuteng kapis" *Daedalia flavida* Leveille; (2) "alitaptap", *Pleurotus canus* Quelet; (3) "kabuteng ginikan" or "kabuteng saging", *Volvaria esculenta* Bresadola; and (4) "kulatkulat kauayan", *Lentinus exilis* Kotzch. Two other unclassified species, one which belonging to the genus Cortinarius, were found active against gram-positive and gram-negative organisms and mycobacteria.

615.41:633.18:631.57

112. The manufacture of tikitiki tablets from the extract of rice polishings. Gloria R. Tiongson and Rafael Hizon. Journal of the Philippine Pharmaceutical Association, Jan. 15, 1957, v.44, no.1, p.5-20. tables, graph, illus. 24 refs. (Abstracted in part from a thesis submitted by Gloria R. Tiongson to the Graduate School, UP, in partial fulfillment of the requirements for the degree of M.S. in Pharmacy)

Tikitiki extract was prepared by maceration and subsequent percolation of rice polishings using 25% alcohol as menstrum. The U.S.P. method using 75% alcohol was found to have rendered the extract unsuitable for tableting . About 2,830 cc of extract was obtained from 30 kg, each cc being equivalent to 10.6 g of rice polishings. The extract was absorbed in a 1:2 starch-kaolin mixture (dried at 100°C) and the resulting mixture dried in a drying closet at a temperature kept below 60°C. The mixture was then mixed thoroughly with 5% lubricant which consisted of a 1:1.5 mixture of starch and stearic acid. The resulting granulation was compressed into 12-grain tablets in a compressing machine and then coated. The first sealing coat consisted of five 2 cc applications of 15% alcoholic solution of arsenic-free shellac and the second coat was an alcoholic solution of methyl cellulose 4000 and carbowax 6000. The coating did not harden nor affect the disintegration time of the tablets.

Tabulated results of the control tests made on the finished tablets show that the tablets were quite stable at room temperature, very stable under refrigerated conditions but rather unstable at incubator temperature. The tablets were hard enough to withstand ordinary handling and shipping; the average pressure required to break the tablet being 2.7 kg/sq. in.(for uncoated tablets)and 2.54 kg/sq. in. (for coated tablets). The average disintegration rate for uncoated tablet was found to be 48 min. and 53 min. for coated tablets.

The following formula was established for 62 tablets: tikitiki extract 16 cc, starch (dried at 100°C) 10 g, kaolin (dried at 100°C) 20 g, starch 0.90 g, stearic acid, 1.40 g. The corresponding formula for 1000 tablets were formed using the factor 16.1 (1000/62).

615.41:665.353.6

113. Further study on the uses of coconut oil in pharmacy. Melania Andico-Guerrero and Patrocinio Valenzuela. Journal of the Philippine Pharmaceutical Association, March 15, 1949, v.36, no.3, p.105-121. tables. 26 refs. (Part of the dissertation submitted in 1943 by Melania Andico-Guerrero in partial fulfillment of the requirements for the degree of M.S. in Pharmacy, UP)

The coconut oil used were commercial, water-white, and edible or refined oils. The edible oil gave the least percentage of oleic acid, 0.029%, water-white oil gave 0.7%; and commercial oil gave the highest, 5.58%.

The commercial oil was successfully used in the preparation of hard soap and camphor liniment. Results of the assay of both products conformed with U.S.P. requirements. Proposed pharmacopeial monographs for hard soap and camphor liniment are presented. Edible oil was used in the preparation of camphorated oil for injection, for which a pharmacopeial monograph is also presented. Water-white and refined oils were used in the preparation of a shampoo (cold process) and a simple liniment.

A formula for a coconut oil base is offered: coconut oil 75 cc, soernaceti 20 g, white wax 5 g. It was tried in the preparation of several ointments such as ammoniated mercury, phenol, strong mercurial, mild mercurial, sulfur, iodine, zinc oxide, belladonna, ichthyol, and belladonna ichthyol. The preparations produced greater bacteriostatic property than those prepared with bases other than coconut oil; also, the products compared favorably those with fixed oils like linseed and olive.

Hydrogenated coconut oil was also tried in the preparation of benzoinated lard, simple cerate, rosin cerate, and cantharide cerate. The products proved to be satisfactory and were stable, although with benzoinated lard, the product became more rancid as compared to the Crisco and Purico (commercial lards).

615.41:668.585(083)

114. Preparation of self-heating pads from local materials. Dolores T. Abad. Journal of the Philippine Pharmaceutical Association, March 15, 1957, v.44, no.3, p.79-83. (Part of a dissertation submitted by D.T. Abad to the Graduate School, UST, in partial fulfillment of the requirements for the degree of M.S. in Pharmacy)

Two formulas found satisfactory were: (1) 9 g CaO, 4 g exsiccated alum, 1 g soda lime, 1 g kaolin; (2) 9 g CaO, 3 g exsiccated alum, 1 g soda lime, 1 g kaolin. The method of preparation is as follows: finely powdered soda lime was mixed with kaolin, exsiccated alum, and CaO, then placed in oven-dried tinfoil envelopes and quickly put into oven-dried jars and covered tightly.

Water was found to be the most suitable moistening agent. 5-8 cc was enough to evolve sufficient heat.

615.41(083)

115. The method of manufacture and control of vita-quina elixir. The method of manufacture of laxodia syrup and thiamide injection. Mesalina Moscoso Bañusing. Manila, Manila Central University, 1953. 76p. 100 refs. (Thesis. M.S. in Pharmacy)

The preparation and pharmacologic action of the ingredients used in the preparation of vitaquina elixir are discussed. The formula devised for the preparation is: totaquina 6 g, ferric ammonium citrate 18 g, thiamine hydrochloride 0.75 g, aromatic elixir, q.s. 1000 cc. Totaquina was extracted from Cinchona which is effective in the control of malaria and is useful bitter tonic. Aromatic elixir was prepared from spirit of orange, calcium phosphate, syrup alcohol, and distilled water. The preparation is a good tonic and effective in the treatment of general weakness, debility and in convalescence, especially after recovery from strenous and debilitating sickness.

The formula offered for the preparation of a compound laxative (laxodin syrup) is: ground cinnamon, 0.51 g; ground cloves, 0.73, oz; ground senna leaves, 8.0 cz; aromatic fluid extract of Cascara sagrada, 6.14 oz; pepsin 2.91 oz; oil of peppermint, 63.0 cc; sugar, 5.50 lb; 5% alcohol, 6.40 oz; and water 2.s. ad. 1 gal. The process involved is simply the percolation of the ingredients with alcohol and water and, then collecting the clear filtrate. The local medicinal plants used are the Cassia senna and Rhamnus purshiana from which cascara sagrada was obtained.

Thiamide injection formula: thiamin HCl, 5.0 g; strychnine sulfate, 0.10 g; chloretene, 0.50 g; and water for injection, 100 cc. The assay and actions of the ingredients used are discussed. This preparation is recommended for the correction and prevention of beriberi especially to mothers after delivery. It is also used in cases where there is greatly augmented metabolism that occur in fibrile conditions, hyperthyroidism or vigorous muscular activity. A dose of 1 cc/day is recommended.

615.41(083)

116. The method of manufacture and control of elixir phyllanthin. The method of manufacture of syrup premadora and guayaptol injection. Corazon V. Buma-at. Manila, Manila Central University, n.d. v.p. 18 refs. (Thesis. M.S. in Pharmacy)

Elixir phyllanthin was prepared using local medicinal plants namely: *Phyllanthus niruri* L., "sampalucan", *Datura metel*, "talongpunai", and *Viburnum prunifolium* L. The formula evolved for its preparation is: fluid extract *Viburnum prunifolium* Linn. 10 cc, fluid extract *Phyllanthus niruri* Linn. 10 cc, tincture *Datura metel* Linn. 4 cc, elixir phenobarbital 25 cc, elixir aminopyrine 20 cc, simple syrup 20 cc, and distilled water q.s. 135 cc. The preparation and assay of the ingredients are discussed. Elixir phyllanthin is used as a uterine tonic, a stimulant, and as treatment for menstrual disorder, dysmenorrhea and other similar conditions. The usual dose prescribed is 3 tbsp after each meal or anytime there is severe pain.

The formula offered for the preparation of syrup of premadora is: fluid extract ipecac 4.0 cc, fluid extract *Premna odorata* 11 cc, ammonium chloride 2.7 cc, syrup orange 70 cc, distilled water q.s. ad. 135 cc. This preparation makes use of local medicinal plants: *Premna odorata* Blanco, locally known as "alagau", *Caphalis ipecacuanha*, "ipecac", which contains 3 alkaloids, emetine, cephalin, and psychotrin; and the rind of *Citrus decumana*, "lukban", from which the orange syrup was prepared. The preparation is an effective expectorant and emetic in cases of coughs, especially for children who can not cough out dry phlegm very well. The usual dose for adults is 1 tbsp after each meal and 1 tsp for children. The preparation and pharmacologic actions of each ingredients are also discussed.

The guayaptol injection formula is a modification of that used by a local drug manufacturer: eucalyptol 0.15 cc, guayaptol 0.05 cc, ether 0.05, camphor 0.05 cc, olive oil, q.s. In this preparation, the chlorophyll and chlorobutanol are omitted inasmuch as the amount of chlorobutanol, which acts as an anesthetic , did not give the desired effect and without the chlorophyll matter, the preparation still gave a greenish-yellow color. Guayaptol is specific in the treatment of coughs due to asthma, pneumonia pulmonary tuberculosis, pertussis, and bronchitis. The dose prescribed is 1-6 cc daily or every other day, by intramuscular injections preferably on the buttocks with weekly rest intervals. Children from 5-12 years should be given 1-3 cc; 2 mo.-5 years, $\frac{1}{2}$ - 1 cc or as directed by a physician.

615.41(083)

117. The method of manufacture and control of cold lozenges and benacal syrup. Josefina R. Dizon. Manila, Manila Central University, 1952. v.p. 28 refs. (Thesis. M.S. in Pharmacy)

Cold lozenges was prepared using the given formula which consists of: benzoic acid, menthol, eucalyptol, oil of anise, talc, liquid petrolatum, mixture of sucrose-lactose, and 70% alcohol. Addition of ammonium chloride was found not feasible as it offered difficulty in granulation due to its slightly hygroscopic nature. The oil of anise was preferred than thymol as it provides a mild delicate aroma aside from its being an effective expectorant. Talc was used as a lubricant in place of calcium stearate which was unavailable at the time.

Comparative studies of its potency (though not actually determined by bacteriological tests) proved its germicidal effect such that it is indicated in most respiratory diseases, mucous membrane affections caused by staphylococcus organisms, and other types of minor throat disturbances. A dose of 1 tablet (. grains) allowed to dissolved in the mouth every 3 hr is prescribed.

Another preparation described which made use of "kalamansi", *Citrus mitis*, is Benacal syrup. As indicated in the given formula, it contains sodium citrate, ammonium, chloride, benadryl hydrochloride, menthol, and alcohol. Because of its benadryl content, it promotes desensitization, thus, it is effective against allergic colds. It is especially good for children and adults in cases of bronchitis, coughs, irritated throats, and various acute conditions of the respiratory tract. Unlike other syrups, it neither upsets the digestive system nor causes nausea. A dose of 1 tsp every 3 hrs is recommended for children (2-5 yrs) and 2 tsp every 3 hrs for those 5 and above.

The chemistry and pharmacologic actions of the ingredients of both preparations are discussed.

615.41(083)

118. The manufacture and control of arrdyline injection, vita-fer elixir, timosyl baby cough syrup. Mayumi Baria Leyba. Manila, Manila Central University, 1953. 79p. 116 refs. (Thesis. M.S. in Pharmacy)

Arrdyline injection and vita-fer elixir are two similar preparations useful in cases of anemia, general debility, neurasthenia, vitamin B deficiency and similar conditions. Arrdyline injection was prepared using the formula evolved which contains cacodylate, arrhenal (disodium monoethyl arsenate), sodium glycerophosphate, and strychnine sulfate. Results of the assay of the preparation indicate that the total arsenic content is 0.340, thus it can be safely administered. A dose of 2 cc/day is recommended.

Vita-fer elixir was prepared using a modified U.S.P. formula for ferrous sulfate syrup which consists of ferrous sulfate crystals, and thiamine hydrochloride; citric acid, peppermint spirit, simple syrup, and aromatic elixir were added to mask the saline and stypic taste of the ferrous sulfate, thereby rendering the preparation more palatable. An average dose of one teaspoon/day is recommended.

Timosyl baby cough syrup is a polypharmacal preparation. It was prepared using the given formula consisting of fluid extract of squill, cascara sagrada, fluid extract of thyme, tartar emetic, tolu, honey, glycerin, and wild cherry syrup. The pharmacologic actions and uses of the ingredients are also discussed. A dose of 1 tsp. 3 times a day, until the cough is relieved, is recommended.

615.41(083)

119. The formulation and development of a standard ointment base. Fernando Belmonte Tangco. Journal of the Philippine Pharmaceutical Association, Jan.-March 1959, v.46, no.1-3, p.18-24. tables, diagr. 10 refs. (Abstract of a thesis submitted by the author to the Graduate School, Purdue University, in partial fulfillment of the requirements for the degree of Master of Science, 1953)

The formula established for the proposed standard ointment base was: stearyl alcohol 25 g, oleic acid 17 cc, sodium lauryl sulfate 1 g, propylene glycol 12 cc, and distilled water 45 cc. To determine whether this formula could be duplicated, three sets of ointment base were prepared and their properties compared. Tabulated results show that their general appearances, melting points, densities, and penetration consistencies, as determined, were approximately the same. The average density of the 3 batches was 7.86 g/10 cc which compares favorably with that of the original batch which is 7.82 g/10 cc and their melting points ranged from 49.8-50.6°C while the original batch gave 51°C. The penetration consistency, using different densities and time intervals, was close to that of the original batch. With 5 g, the average penetration-consistency of the 3 batches gave an average of 13.97 while the original gave 15.8.

615.41(083.7)

120. The influence of granulation

particle size on certain tablet properties. Angel S. Arambulo and Dwight L. Deardorf. Journal of the Philippine Pharmaceutical Association, Jan. 15, 1954, v.41, no.1, p.3-15. tables, graph. 13 refs. (Abstracted in part from a thesis submitted to the Graduate School of the University of Illinois by Angel S. Arambulo in partial fulfillment of the requirements for the degree of M.S.)

The material studied was commercial granular NaCl. U.S. standard sieves of from # 4 to # 200 wire and 7/16 in. punch and die were employed in compressing the granulation into tablets. The findings proved that particle size influences the tablet weight, weight variation, and hardness. It was observed that the tablets compressed from granules of 600-800 μ weighed heaviest and the weight decreased when the tablets were compressed from granules in either side of this range. Weight variation in tablets was minimal where the granulation produced the heaviest tablet. The hardness of the tablet increased as its weight increased by 0.13 g/mg increase in weight of the tablet.

The optimum particle size distribution for tablet granulation should be based on the material and size of the die employed. A wide range of particle size may be allowed in a mixture, without much effect on weight variation, provided that the densities of the tablets to be compressed are similar.

615.41(083.7):308

121. A survey on the composition of some official pharmaceutical preparations manufactured by local laboratories. Felicidad Jocson Cuison. Manila, University of Santo Tomas, 1958. 10p. tables. 20 refs. (Thesis. M.S. in Pharmacy)

Results of the assays made according to the U.S.P. and N.F. of the following preparations are presented: (1) acetylsalicylic acid, U.S.P., (2) calcium lactate tablets, U.S.P., (3) sodium salicylate, U.S.P. (4) sulfadiazine, U.S.P., (5) H_2O_2 solution U.S.P., and (6) aromatic NH_3 spirit, U.S.P.

Of 3 acetylasalicylic acids, only 50% passed the U.S.P. requirements, and as to the acetylsalicylic acid contents, 62.5% were within the official standard, 12.5% above and 25% below. Of the calcium lactate tablets, 25% conformed with the N.F. requirements and for drug contents, 37.5% was within the standard, 12.5% above and 50% below. Of the sodium salicylates, 14.2% conformed with the U.S.P. standards and as to their drug contents, 42.8% was within the official requirements and 57.1% below. Of the sulfadiazine tablets, 17% conformed with the U.S.P. requirements, 33.3% passed the official requirements for sulfadiazine contents, and 66.7% below the standard limit. 60% of the sulfamerazine samples passed the official requirements, 80% within the standard requirements, and 20% below the standard limit. No sample of H_2O_2 solutions and aromatic NH_3 spirits passed the official requirements. Nevertheless, for drug contents of H_2O_2, 14.3% passed the required limit, 28.5% above standard and 57.1% was below. For NH_3 contents of aromatic NH_3 spirits, only 7.1% passed the official limit, 14.3% was above, and 78.5% below standard; for $(NH_4)_2CO_3$ contents, 14.3% was within the standard and 85.7% below; for alcohol contents, 7.1% was found below and 92.9% above the requirements.

The following recommendations are suggested: (1) that a system and diligent supervision or inspection of laboratories be instituted to make sure that the established rules and regulations are strictly enforced; (2) that more incentive and encouragement be given to local laboratories in order to produce quality drugs; and (3) that products be tested by government entities more often to check the reliability of the manufacturers.

615.41.001.4

122. Controls in pharmaceutical manufacturing. Purificacion S. Suaco. Journal of the Philippine Pharmaceutical Association, March 15, 1953, v.40, no.3, p.89-92. (Paper read during the program offered by the Delta Chapter, Dec. 13, 1952 in connection with the 1952 National Pharmacy Week)

A check upon the potency of the raw materials must be made before compounding is done. Measures like buffering, over-aging, use of preservatives, dating, and labeling of finished preparations must be employed to compensate for the unforeseen delayed physical and chemical reactions involved in the preparation and thus determine the stability of the products. For injectables, safety and sterility tests must be performed.

For finished products that undergo labeling and packaging a control or lot number must be assigned by which the history of the preparation may be known. Laboratory controls include physical, chemical, electronic, microbiological, bio-assay, toxicology, and clinical tests; administrative controls include procedures such as proper labeling, recording of control number and its history, shelf sampling and recording of deliveries. Periodical spot checks on dust content and bacterial colony of the sterile rooms must be also made.

Examples of tests employed for water used for injection, and an assay of penicillin are presented.

615.415

123. Greasy and greaseless ointments. Isabel Garcia-Reyes and Aniceta Tinde. Journal of the Philippine Pharmaceutical Association, Jan. 15, 1951, v.38, no.1, p.6-9. 10 refs. (Paper read before the Scientific Meeting of the Philippine Pharmaceutical Association held in Cebu City in Dec. 1947)

Several ointments official in the U.S.P. XIII, N.F. VII, and some cosmetic preparations in recipe books were prepared and tested. The following conclusions were derived: (1) iodine preparations are more stable in air-tight containers; (2) mercury requires a greasy ointment base; (3) certain substances are readily absorbed when they are dispensed with a greasy base; (4) greaseless ointments are more advantageous than the greasy forms when applied as creams, pastes, salves, or as cream-emulsions, or hydrophyllic ointments for burns, antiseptics and as analgesics; (5) water-soluble ointments are readily removed with soap and water; (6) greaseless ointments do not become rancid on keeping; and (7) alcohol-containing creams dry off readily and are not greasy.

PHARMACOGNOSY

615.43:615.7:582.7:616.72

124. A pharmacognostical study of Dioscorea hispida Dennst. Adoracion T. Arañez and Maria Pastrana-Castrence. Journal of the Philippine Pharmaceutical Association, Sept. 15, 1957, v.44, no.9, p.295-330. illus, diagr. 48 refs. (Paper read at the Scientific Session of the 1957 Annual Meeting and Convention of the Philippine Pharmaceutical Association held in Iloilo City, April 11-14, 1957)

A review is made of the literature of Dioscorea hispida Dennst., known in Tagalog as "nami" or "kayos", covering nomenclature, family characteristics, distribution and time of flowering, morphology and history, constituents and its therapeutic effects, and the possibilities of using its steroidal sapogenins as source for the thesis of cortisone. Its uses as food is also described.

An investigation of the plant from Mataas-na-kahoy (Batangas) showed that its fleshy portion is a tuber and has characteristics of both the monocotyledon and dicotyledon. The microchemical tests revealed that the tuber, more than any other part, contains the most alkaloids, saponins and starch. Alkaloids and starch were also observed in the pith ray of the stem, cortex, parenchyma, and pith ray of the petiole and petiolule; starch was found in the leaf blades; tannin in the tuber, cortex, and pith ray of the stem; fat in the tuber and basal part of the trichomes and protein in all parenchyma cells. The pharmacopoeial properties as determined by the U.S.P. XV method are: 3.77% total ash, 1.41% acid insoluble, 16.02% moisture, 1.51% crude fiber, and no foreign organic matter.

A proposed pharmacopoeial monograph (pharmacognostical part) of *Dioscorea hispida* is presented.

615.43:615.7:598.112

125. Medicinal lizards in the Philippines. Eusebio Y. Garcia and D. K. Villalus. Journal of the Philippine Islands Medical Association, April 1939, v.19, no.4, p.217-223. plates. 11 refs.

A brief description of the following species and their medicinal uses are given: *Mabuya multicarinata* Gray "bubuli" or "tambilihan", *M. multifaciata* Kuhl, "timbabalak" or "bubuli", *M. rudis* Boulenger, "bubuling bulik", *Hemidactylus frenatus* Dumeril and Bibron, "butike"; *H. luzonensis* Taylor "butiking dilao"; *Cosymbotus platyurus* Schneider, "butiking puti"; *Emoja atrocostatum* Lesson, "timbabalak dagat", *E. cyanarum* Lesson, "timbabalak dagat"; *Lyogosoma chalcides* Linn. "timbabalak anay"; *Dasia smaragdinum* Lesson, "timbabalak bahaghari"; *Gekko gekko* Linn., "tuko".

The following species were not included because of their rarity in the Philippines and insufficiency of data about their medicinal values: *Gekko monarchus* and *G. mindorensis*; *Dasia olivaceum*; *Emoia reficauda*; and *Hemidactylus garnottii*.

An investigation of the active principle present in these medicinal lizards is suggested.

615.43:615.7:634.616

126. A substitute for coffee or cacao, and medicines from a plastic material. Eusebio Y. Garcia. *MD Journal*, Sept. 1957, v.6, no.9, p.369-373. (Paper presented at the monthly scientific meeting of the Philippine Association for the Advancement of Science held at the Institute of Science and Technology on Sept. 10, 1957)

The coconut shells processed into coconut flour at the Casco (a plastic laboratory) has been found to have some beneficial effects in man. Pharmacodynamic experiments in dogs and man revealed that it can check diarrhea and constipation; headaches, frequent gas pains, and lassitude disappeared completely in 2 cases of constipative persons. In dogs, it was shown to have some distant effects such as the spontaneous expulsion of intestinal worms and easy urination. It can also prevent the diffusion or absorption of some food allergens to which the individuals are hypersensitive.

615.43:615.71:595.78

127. The strong antihaemorrhagic property of hecabepterin, the yellow pigment in the Philippine butterfly Terias hecabe Linnaeus. Eusebio Y. Garcia. Journal of the Philippine Medical Association, Sept. 1948, v.24, no.9, p.515-523. table, illus. 7 refs. (Paper read before the Laguna Medical Society on May 23, 1948)

Results of observations on both animal and man indicated that "hecabepterin" affects principally the bleeding time; the coagulation time is little affected or not at all. In 18 cases of pulmonary tuberculosis and one case with metastatic cancer of the lung, actual hemoptysis (2-3 cc blood/cough) stopped in 7-9 min. after injection of 3-4 cc of "hecabepterin." The anti-bleeding effect lasted for 2 hrs.

"Hecabepterin" is isolated

by boiling the concoction of the wings in normal saline solution (2 pairs of wings to every 5 cc of saline solution), until all the yellow pigments are removed, and then filtered. The resulting filtrate is transferred into rubber-capped bottles and sterilized by boiling, after which the solution is ready for injection.

The pterin action is believed to have something to do with the thromboplastin-antiprothrombin reaction.

615.43:615.71:616.12

128. Determination of the average single digitalizing dose in Filipinos: preliminary report. Conrado Dayrit, Gonzalo F. Austria, Florentino Herrera, Jr. and Aida Baltazar. Acta Medica Philippina, April-June 1951, v.7, no.4, p.263-278. tables, graphs. 17 refs. (Paper presented before the 44th annual convention of the Philippine Medical Association and 1st South-east Asia Medical Conference, Manila, May 3, 1951)

The effects of digitoxin were studied in 9 patients with auricular fibrillation. The average single digitalizing dose was determined to be approximately 1.4 mg, given orally. Maximal depression in ventricular rate was observed within an average of 7 hrs. after injection of the drug. Filipinos, contrary to prevailing opinion, do not require a smaller dose than Americans, but that they may require even more.

Further study on a larger series of patients is being undertaken.

615.43:615.73:581.4:616.248

129. An anatomical study of four Chinese drugs. Hsing San Soo. Journal of the Philippine Pharmaceutical Association, March 15, 1950, v.37, p.105-121. plates. 29 refs. (Part of a dissertation submitted to the Graduate School of the University of Santo Tomas, Manila in partial fulfillment of the requirements for the degree of Doctor of Philosophy)

The 4 drugs namely, Gleditschia japonica Miq., a species of the Leguminosae; Pinellia tuberifera Ten., a species of the Araceae; Croton tiglium Linn., a species of the Euphorbiaceae; and Prunus armeniaca Linn., a species of the Rosaceae were obtained from Chinese drugstores in Manila. A description of the plant part yielding the drug, the external structure, microscopic and macroscopic structure of each plant is given. These drugs are ingredients of a well-known, and considered one of the best, anti-asthmatic preparations used by Chinese physicians. The method by which they are compounded or prepared is a secret and only known to a few Chinese authorities. The individual uses of these plants are:

The pod of Gleditschia japonica is used as a stimulant, an anthelmintic, and an expectorant. It relieves flatulence and induces sneezing.

The tuber of Pinella tuberifera is used as a remedy for cough, flatulence, and as expectorant.

The endosperm of the seeds of Croton tiglium is a drastic purgative, official in several pharmacopoeias. It is reputed to have curative properties against malaria, typhoid, and irregular menstruation.

The cotyledon of the seeds of Prunus armeniaca is used to check coughing and relieve upwhoofing and stomach-thundering. It is also used for healing fresh wounds, soothing, headaches, flatulence, and hydrophobia.

615.43:615.73:582.678.1

130. Chemical composition and pharmacognostical characteristics of "avocado" leaves (Persea americana, Miller). Carmen G. Escarcha. Manila, Centrol Escolar University, 1954, 51p. tables, illus. 19 refs. (Thesis. M.S. in Pharmacy)

The infusion of the leaves of "avocado", Persea americana Miller, has been used for diabetes. The morphology and microscopic description of the powdered leaves, collected from the CEU Botanical Garden (Manila), Sta. Ana (Rizal), Paco (Manila) and La Paz (Iloilo City) are given. Preliminary analysis of the leaves revealed the presence of essential oil, tannin, resin, some oxidizing substances, saponins, reducing and non-reducing sugars, proteins, organic acids, glycosides. No alkaloids and cyanophoric glycosides were obtained. 2.52% gallotannic acid was obtained and the tannin was found to be of the catechol group. Successive extraction showed that 95% alcohol gave the highest percentage of extractive which consisted mostly of resin and tannin. The petroleum extract represented the green pigments and traces of essential oil; and the water extract, the carbohydrates. Dialysis of the aqueous solution gave colorless feather-like crystals, but which were not identified.

The results of the experiment failed to indicate the particular plant principle responsible for its therapeutic value. It was concluded that the medicinal property may be attributed to several groups of plant principles, and not to a single group.

615.43:615.73:582.865

131. The cathartic effects in man of the leaves of Wikstroemia ovata Meyer (salago leaves). Faustino Garcia. Philippine Journal of Science, Aug. 1933, v.51, no.4, p.485-494. tables. 3 refs.

Generally, a large green leaf of "salago" chewed and swallowed can cause watery movement. The therapeutic cathartic dose recommended is 1-4 leaves weighing 0.15-0.65 g. The cathartic response varied with the time of administration. With 3-4 leaves taken 1-2 hr before meal, the usual time of response was 1.5 to 2 hr; with 1-2 leaves the response was delayed from 5-17 hr. Taken 1-2 hr after meal, the response was delayed for 2-7 hr even with large doses. The duration of catharsis also varied with the doses; 3-4 leaves produced catharsis for 1-5 hr and with larger doses the duration was prolonged for 10-14 hrs.

5 large leaves, weighing 0.8 g, produced not only catharsis but also vomiting and other side effects in some cases. The side effects noted were slight abdominal pain, slight perspiration, bodily weakness, slight tenesmus, warm to burning sensation in the mouth and throat, and biting taste accompanied by numbness at the tip of the tongue. These undesirable effects were corrected by administering the sliced leaves in capsules, but the cathartic effect was less in this form. Belladonna powder did not lessen either the abdominal pair or tenesmus.

Studies on the cathartic principle revealed that its activity is decreased when the leaves are dried.

615.43:615.73:582.937

132. Chemical and pharmacological studies of plumierid. Faustino Garcia and Alfredo C. Santos. Journal of the Philippine Pharmaceutical Association, Oct. 1931, v.3, no.10, p.378-382; Nov. 1931, no.11, p.424-435. tables. 10 refs. (Reprinted from Revista Filipina de Medicina y Farmacia, 22 (1931): 254)

About 2% plumierid was obtained from 5.9 kg of the fresh bark of Plumiera acutifolia Poir, locally known as "calachuche". It was found soluble in H_2O, CH_3OH, C_2H_5OH, and ether.

Pharmacologic studies in frogs revealed that the minimum lethal dose of plumierid was 1.2 mg/g of frog. In cats, no toxic effect was observed even with doses of 3.8 g dissolved in saline solution. It was found non-irritant to the eye and does not affect the blood pressure, respiration, kidneys, and uterus. It has no antiseptic action against staphylococci. A most important effect observed in cats was catharsis, produced with doses as small as 0.1 g of powdered plumierid.

In man, the cathartic effect was produced with doses of 0.2-0.3 g administered orally in capsules. The onset of effect was from 5-10 hr after administration of the drug, and sooner when given in the morning than at bedtime. The stools produced were soft or semi-fluid. The chief complaint was slight abdominal pain before defecation. Doses of 0.4-1 g caused diuresis. Plumierid was also found effective for constipation. 10 case reports are presented.

615.43:615.73:582.937:616.39

133. A preliminary report on the pharmacological and therapeutic study of the insulin-like action of Catharanthus roseus and its clinical observations on diabetic patients. Hermogenes A. Santos, Belen Espino-Cabatit, and Carmen Salgado-Ora. Santo Tomas Journal of Medicine, March-April 1954, v.9, no.2, p.115-119. 2 refs. (Paper read at the 48th Annual Convention, Philippine Medical Association at the UST, May 1953)

Experiments on cats showed that the concentrated aqueous extract of "chichirica", Catharanthus roseus, given parenterally, produced a significant and consistent lowering of blood sugar.

The encouraging results of the clinical trials on diabetic patients, using a decoction of the leaves of the plant, seemed to corroborate the experimental observations. Further clinical studies are being carried out. 3 case reports are presented.

615.43:615.73:615.32:616.39

134. Distribution of insulin like principle in different plants and its therapeutic application to a few cases of diabetes mellitus. Faustino Garcia. Philippine Journal of Science, Aug. 1944, v.76, no.3, p.3-19. (159-175) tables, graph. 4 refs.

The plants investigated are: "duhat", Syzygium cumini (Linn.) Skeels; "banaba", Lagerstroemia speciosa (Linn.) Pers; "chichirica", Catharanthus roseus Don; "camachile", Pithecolobium dulce (Roxb.); "camote", Ipomoea batatas Linn.; "kangkong", Ipomoea aquatica Forsk.; "sampalok" Tamarindus indica Linn., grass, Andropogon citratus DC., waterlily, Nymphaea nonchali Burm; "makahiyang lalaki", Biophytum sensitivum (Linn.) DC. Clinical studies on 4 cases of diabetes mellitus revealed that the decoction of mature "banaba" leaves reduced the blood sugar after 2-4 weeks of treatment; the decoction of the tops of "camote" distinctly reduced the blood sugar; and the white powder from "duhat" when given at a daily dose of from 5 to 7.5 cg. In all cases, the blood sugar rose soon after suspension of the decoction and lowered again even without the decoction being given.

The decoction was found not a suitable preparation for a prolonged use. Thus, it is recommended that some concentrated pharmaceutical preparation or solution or other preparation of the isolated principle be made. For making pharmaceutical preparations the following which contain sufficient amount of insulin-like principle are recommended: Lagerstroemia speciosa, Catharanthus roseus, Syzygium cumini and Biophytum sensitivum.

To diabetics who wish to avail themselves of the insulin like principle and at the same time eat the parts containing it, the "tops of camote" and the shoots of "kangkong" are recommended.

615.43:615.777

135. Studies on the antiseptic properties of some plant products. Milagros V. Sadili. Manila, Centro Escolar University, 1952. 77p. tables. 28 refs. (Thesis. M.S. in Pharmacy)

The Wet-Filter Paper method was employed to determine the relative antiseptic activity of some local plant principles, using Staphyloccocus aureus as test organism. The volatile oils, more than any other plant principle, exhibited antiseptic properties. The oils that showed inhibitory activity on the organism, in the order of their decreasing activity are: (1) cinnamon, (2) eucalyptus, cloves, bay, chenopodium; (3) bitter caraway; (4) spearmint; and (5) peppermint, fennel. The aromatic oils and tannic acid showed very mild antiseptic effect, their antibacterial property being the same as that of peppermint. Camphor, on the other hand, inhibited bacterial growth only in high concentration.

The following plant principles showed no antiseptic properties; (1) decoction of the leaves of guava, *Psidium guajava* Linn., and "alagau", *Premna odorata* Blanco; (2) bark decoction of "makabuhay" *Tinospora rumphii* Linn., (4) alcoholic extract of "bunga" *Areca catechu* Linn.; (5) coloring principles from the wood of narra, *Pterocarpus indicus* Willd, and seeds of "achuete", *Bixa orellana* Linn.; and (6) extract of "bakauan", *Rhizophora longissima* Blanco, and sap of the leaves of "akapulko", *Cassia alata* Linn.

These results revealed that the therapeutic effects of aqueous solution of some plant principles may not be due to any antiseptic property of the preparation. However, the encouraging results on tannic acid suggest that further study on pure tannic acid is in order.

615.43:615.777:582.572

136. A study of the antibacterial property of "sibuyas tagalog" (Allium ascalonicum Linn.). Adelina T. Siao. Manila, Centro Escolar University, 1954, 87p. tables, illus. 27 refs. (Thesis. M.S. in Pharmacy)

An investigation of the antibacterial property of the leaves, outer dry skin, and bulbs of "sibuyas tagalog", *Allium ascalonicum* Linn., was made using *Staphylococcus aureus* *Bacillus subtilis*, *Sarcina lutea*, *Escherichia coli*, *Proteus vulgaris*, and *Shigella flexner* as test organisms. The results revealed that the inhibitory action on the test organisms is primarily due to the oleoresin found in the bulbs to the extent of 0.1635%. On separation of the oleoresin, it was found that the volatile oil portion gave a greater inhibitory effect than the resin. The mature bulbs showed greater inhibitory activity than the young bulbs. The reflux method for partial purification of antibacterial principle was found the most applicable.

The alcohol-sulfuric-ether extract of the outer dry skins showed slight inhibitions on all organisms. The alcoholic extract of the dried leaves showed very negligible zones of inhibitions in some plates and none in other plates.

615.43:615.777:582.795

137. A study of the antibacterial extract from datiles. Victoria A. Masilungan, Fe. V. Vito and Virginia B. Quisumbing. Journal of the Philippine Pharmaceutical Association, May 15, 1957, v.44, no.5, p.163-167. tables. 8 refs. (Paper read during the Scientific Meeting of the 1957 Annual Meeting and National Convention of the Philippine Pharmaceutical Association held in Iloilco City)

The antibacterial principles from "datiles" (*Muntingia calabura* Linn.) leaves obtained from trees grown around the Institute of Science and Technology (Manila) were extracted using petroleum ether, chloroform, ether, acetone, alcohol, and water. Tabulated results of the determination of the spectrum activity of the crude extract show that chloroform, ether, acetone and alcohol extracted substances are inhibitory to *Micrococcus aureus* *Sarcina lutea*, *Bacillus subtilis*, and *Mycobacterium tuberculosis* 607. Acetone and alcohol extracted substances are stimulatory to *S. lutea*. Acetone was the only solvent that extracted substances stimulatory to

M. aureus. Petroleum ether and water extracts caused slight inhibition to M. aureus and S. lutea, respectively. On the other hand, none of the extracts was found inhibitory to Escherichia coli and Bacillus pyocyaneus.

The partially purified residue reacted differently on the test organisms. The petroleum ether extract gave slight stimulatory effect on B. subtilis but no effect on M. aureus, E. coli, S. lutea, B. pyocyaneus and M. tuberculosis 607. Chloroform and ether extracted the principles inhibitory and stimulatory to M. aureus, S. lutea and B. subtilis, but which were only inhibitory to M. tuberculosis 607. and no effect on B. pyocyaneus. Chloroform and ether caused almost the same degree of inhibition to M. aureus, S. lutea, and B. subtilis but differed in stimulatory power, ether being stronger than chloroform, over M. aureus and B. subtilis. Ether gave stimulatory effect on E. coli while chloroform extract had no effect. A wider zone of inhibition of M. tuberculosis 607 was effected with ether than with chloroform extract.

615.43:615.777:582.948.2
616-001

138. Therapeutic notes on alibuñgog, a native plant. Constancia Camomot. Journal of the Philippine Islands Medical Association, Aug. 1939, v.19, no.8, p.499-503. plate. (Paper read before the 36th annual meeting of the Philippine Islands Medical Association in Baguio, May 2-5, 1939)

The stem bark and green leaves of "alibuñgog" have been proven to possess curative powers for traumatic contusions and certain inflammatory processes. It is usually applied as a poultice or dressing for affected parts. Its value was demonstrated in 7 cases presented, using either "alibuñgog" poultice or leaf extract.

"Alibuñgog" has also been used as a remedy for diarrhea and dysentery with frequent and bloody stools accompanied by tenesmus. It is also mixed with other medicinal plant, "alañgitñgit", and applied externally to the anterior abdominal walls.

It is assumed that the therapeutic value of the leaves, stem bark, and roots of "alibuñgog is due more to the presence of a counter-irritant or emolient substance rather than a germicidal, if not both.

615.43:615.777:615.32

139. Investigation of some Philippine plants for insecticidal activity. Soledad P. Alberto. Manila, Centro Escolar University, 1952. 69p. tables. 37 refs. (Thesis. M.S. in Pharmacy)

10 Philippine plants investigated for insecticidal activities were: derris, Derris elliptica (Roxb.) Benth.; "adelfa" Nerium indicum Mill.; tobacco Nicotiana tabacum Linn.; "kampanero", Thevetia peruviana (Pers.) Merr.; "gogo", Entada phaseoloides Linn.; castor bean, Ricinus communis Linn., "kablin". Pogostemon cablin (Blanco) Benth.; papaya, Carica papaya Linn.; "lagundi", Vitex negundo Linn.; and "soro-soro", Euphorbia neriifolia. The plants gave insecticidal activities in the following order of effectiveness: roots of derris, leaves of "adelfa", midribs of tobacco, leaves of " kampanero", bark of "gogo", and seeds and leaves of castor bean plant. The leaves of "kablin", papaya, "lagundi", and "soro-soro" which were reported to have insecticidal properties did not manifest toxicity when tested on cockroaches.

The different methods of detecting the toxicity of plant materials, namely: the contact, immersion, stomach poison, and the blood stream injection tests were employed using cockroaches and mosquito larvae as test organisms. The blood stream injection test gave the most satisfactory results, the effects being determined in a relatively short time.

615.43:615.777:615.32

140. A survey on the antibacterial properties of some local plants. Emma B. de Gracia. Manila, Centro Escolar University, 1954. 68p. tables, illus. 24 refs. (Thesis. M.S. in Pharmacy)

Four local plants, namely: *Ipomoea batatas* Linn; *Brassica integrifolia* (Wests) O. D. Schultz, mustard; *Tinospora rumphii* Boerl, "makabuhay"; and *Momordica charantia* Linn., "ampalaya" were investigated using the test organisms *Staphylococcus aureus*, *Bacillus subtilis*, *Sarcina lutea*, *Shigella flexneri*, *Escherichia coli*, and *Proteus vulgaris*. Extracts of both young and mature stems of "kamote" and "makabuhay" exhibited stimulatory rather than inhibitory action when assayed by the filter-paper disc method; the alcoholic extract of the mustard leaves showed slight inhibition. "Ampalaya" exhibited high degree of inhibition. 3 varieties of "ampalaya" (2 with elongated and 1 with ovoid fruits) were further studied and the following observed: (1) the hot and cold aqueous extracts of the dried leaves showed no antibacterial property; (2) the alcoholic leaf extracts of the varieties with elongated fruits showed greater inhibition than the other varieties; (3) the mature leaves exhibited a more marked inhibitory action on gram-positive organisms than on gram-negative organisms; (4) the purified alcoholic extract exhibited more activity against bacteria in lesser concentration, thus the antibacterial activity is inversely proportional to the concentration; (5) chloroform ethyl-acetate, and alcohol extractives gave positive results against bacteria while water, ether and petroleum ether extractives showed no inhibitions. The tertiary alkaloid isolated from the alcoholic extract was stable to heat. It was surmised that the antibacterial activity of "ampalaya" leaves was not only due to the alkaloid but to still other substances present, as a decreased size of inhibition around the assay disc was observed after purification. Tests for cyano-genetic glucosides gave negative results.

It is suggested that a more complete isolation and purification of the antibacterial substances be performed.

615.43:615.777:615.32

141. Some common Philippine medicinal plants containing antibacterial substances. Victoria A. Masilungan, Joaquin Marañon, and Vicenta V. Valencia. Journal of the Philippine Pharmaceutical Association, May 15, 1955, v.42, no.1-4, p.72-79. tables. 24 refs.

142 extracts (71 aqueous and 71 alcoholic) of 38 Philippine medicinal plants obtained from their parts which are commonly used in the treatment of abscesses, furuncles and wounds were examined for the presence of antibacterial substances, using the gram-negative *E. coli* and the gram-positive *M. aureus* as test organisms. 23 alcoholic and 60 aqueous extracts were found to contain antibacterial substances against *M. aureus*; 9 alcoholic and 43 aqueous extracts showed inhibitory activities to *E. coli*. The aqueous extracts of the leaves of *Acacia farnesiana* "aroma", and the bark of *Streblus asper* Lour., "kalios", showed complete and high degree of inhibition to *M. aureus* while the water extracts of the leaves of *Anacardium occidentale* Linn., "kasui", and *Plumiera acuminata* Ait, "kalachuche", gave negative results to said test organisms. The aqueous and alcoholic extracts of the leaves of *Bryophyllum pinnatum* Lam., "katakataka", *Jatropha curcas* Linn., "tubang bakod", *Psidium guajava* Linn., "bayabas", *Tamarindus indica* Linn., "sampaloc", and the rhizome of *Zingiber officinale* Rosc., "luya", produced negative results against both test organisms.

From the results, it is evident that the distribution of antibacterial substances in the plants is uneven and that the parts used for treatment neither always possess the anti-bacterial substances nor always show highest inhibition against the test organisms. The result will help in the choice of the part of the plant that must be preferred for use as medicine.

615.43:615.778

142. On the microchemical tests for identification of sulfa drugs. Joaquin Marañon, Luz Ll. Cosme and Alfredo Diy. Journal of the Philippine Pharmaceutical Association, April 15, 1948, v.35, no.4, p.141-146. illus. 13 refs. (Paper read at the scientific session, 1947 annual meeting and convention of the Philippine Pharmaceutical Association held in the City of Cebu, Dec. 30, 1947)

The modifications made on the silver salt and picrate methods for the identification of sulfanilamides are described. Sulfanilamide did not give definite crystals with silver salt, while sulfasuxidine, sulfapyridine, sulfamerazine, sulfathiazole, sulfadiazine and sulfaguanadine gave characteristic crystals. With picrate method, characteristic crystals were obtained from 7 of the sulfanilamide derivatives, namely: sulfanilamide, sulfadiazine, sulfaguanidine, sulfathiazole, sulfapyridine, sulfamerazine, and sulfasuxidine. The cuprous-copper complexes of five sulfa drugs, official in the U.S.P. except sulfasuxidine, succinyl-sulfathiazole and sulfaguanidine, gave characteristic crystals.

615.43:615.779

143. Evaluation of potencies of antibiotics in the Philippines. Patrocinio S. Santos and Luzonica M. Pesigan. Journal of the Philip--pine Pharmaceutical Association, April 15, 1959, v.46, no.4, p.43-50. tables, illus. 5 refs.

A 4-year (Aug. 1954- Aug. 1958) study to determine the potencies of 1,774 samples of antibiotics included preparations containing the following: penicillin, dihydrostreptomycin and/or streptomycin, chloramphenicol, tetracycline, oxytotracycline, chlortetracycline viomycin, neomycin, novabiocin erythromycin, bacitracin, nystatin, and oleandomycin. Results showed that in general, the antibiotics sold in the Philippines, the majority of which are produced in the United States, some in Europe and a few in Japan, fall within the potency requirements of the Food and Drug Administration, Department of Health Education and Welfare, Washington, D.C. (FDA) and the U.S.P. The minimum requirement of potency of antibiotic is 85%, with few exceptions. Of the 856 penicillin preparations, 14 samples or 1.63% were found below 85%; of the 89 samples of chloramphenicol and 16 of neomycin, only 1 of each were found unsatisfactory. The 544 samples of dihydrostreptomycin and its various preparations were all found satisfactory. Their streptomycin content was within the allowable limit of 1-3% for dihydrostreptomycin and 45-55% for streptomycin-dihydrostreptomycin combinations. All other preparations were also found satisfactory. Only 12 samples were found below standard and have been disapproved for registration.

The methods followed for the biological assays of the samples, which were taken from the Compilation of Methods of Assay of Antibiotic Substances, the FDA and the U.S.P., are summarized in a chart. The samples were obtained from the Drug Section of the Bureau of Health and the Bureau of Supply; the test organisms and antibiotic standards were secured from the Division of Antibiotics, FDA.

615.43:615.779:582.572.2

144. The antibiotic property of the leaves of Allium odorum Linn. Juanita Alvarez Manalo. Manila, Philippine Women's University, 1956. 54p. tables, illus. 25 refs. (Thesis. M.S. in Pharmaceutical Chemistry)

The alcoholic extract of the

dried leaves of *Allium odorum* Linn., locally known as "kuchai", exhibited wide antibacterial spectrum inhibiting growths of both gram-positive and gram-negative organisms, namely: *Aerobacter aerogenes*, *Bacillus subtilis*, *Escherichia coli*, *Micrococcus aureus*, *Sarcina lutea*, and *Pseudomonas aeruginosa*. Applying the dilution method test, the following observations were noted: (1) at a dilution of 1:8, the antibiotic showed inhibition against *S. lutea* within 18 hr. of incubation;
(2) against *B. subtilis*, no growth was observed even up to 96 hr. incubation at 1:8 dilution;
(3) against *E. coli*, at 1:16 dilution, complete inhibition was noted, even after 96 hr. of incubation;
(4) against *M. aureus*, at 1:16 dilution, inhibition was observed, only during the first 18 hours incubation, but no growth was seen at a dilution of 1:4 even after 96 hr.; and (5) complete inhibition at 1:8 dilution against *P. aeruginosa*.
The extract also exhibited antifungal activity against *C. albicans*, *P. filamentosa*, *P. debaryanum*, *S. Pastorianus*, and *T. utilis*.
The antibiotic principle was found stable to heat.

The antibiotic action of the extract encourages speculation concerning the therapeutic applicability of the principle in the treatment of some animal,and possibly, human infections. It is suggested that further research on the purification and identification of the principle and toxicity tests be made to determine its applicability in the treatment of human diseases.

615.43:615.779:582.883

145. The antibiotic principles of the leaves of Callistemon canceolatus D.C. (Myrtaceae). Ester T. Magno. Manila, University of Santo Tomas, 1957. 94p. tables, illus. 74 refs. (Thesis. M.S. in Pharmacy)

The Agar-Streak and the modified filter-paper disc methods of assay were employed in the investigation of the antibiotic properties of the leaves of *Callistemon lanceolatus* commonly called bottlebrush. Organic solvents such as alcohol, ethyl acetate, benzone, methyl alcohol, chloroform, and ether were used to extract the principles which were then tested on *Staphylococcus aureus*, *Escherichia coli*, *Bacillus subtilis* *Gaffkya tetragena*, *Proteus vulgaris*, and *Shigella paradysenteriae*. The solvents showed selective affinity for the antibiotic constituent. The alcoholic extract exhibited inhibitory properties towards *S. aureus*, *B. subtilis*, and *Gaffka tetragena*, but no action on the gram-negative *E. coli*, *P. vulgaris*, and *S. paradysenteriae*. A study of the antibiotic principle in the crude alcoholic extract revealed that it is destroyed at a temperature of 180°C and above. Also, prolonged boiling (beyond 2 hr.), exposure to sunlight, and storage (more than 1 month) diminish its activity. However, climatic and soil conditions as well as maturity of the plant, do not affect the activity of the extract. Two antibiotic principles in the crude alcoholic extract isolated were: (1) the volatile oil which exhibited inhibitory activity against *S. aureus*, *B. subtilis*, and *E. coli*; and (2) the resin which exhibited inhibitory activity against *S. aureus*, and *B. subtilis*.

An investigation of the whole plant revealed that the antibiotic content of the different plant parts vary. Relatively equal amounts were found present in the leaves, fruits, and flowers; negligible quantities in the stems, and none in the roots and bark. The dried leaves extract was found more active than fresh leaves extract.

615.43:615.779:616.832

146. Streptomycin in tuberculosis meningitis with reports of forty cases. Alberto V. Tupas and Leon Pecache. Acta Medica Philippina, July-Sept. 1948, v.5, no.1, p.23-33. 13 refs.

An average daily dosage of 74.2 mg/kg body weight of streptomycin was given intramuscularly, divided into 4-6 doses. Intraspinal injection of 25 mg to 200 mg/injection/day, was also tried with an interval of 2 days to 2 weeks. No definite conclusion could be made as to whether intraspinal injection, together with intramuscular administration is better than intramuscular injection alone. However, in this study, intramuscular injection alone produced less toxic symptoms than the combined intrathecal and intramuscular injections. In all the cases injected intramuscularly, the drug was preferably given deep into the muscles of the buttocks and thighs. The common toxic manifestations of the drug were: skin rashes, fever, edema, and ataxia. Of the 40 cases treated, one half were rendered symptom free and the other half died. Nevertheless, it was concluded that streptomycin can prolong and modify the course of T.B. meningitis.

615.43:615.779:616.992

147. Filipin, new antibiotic, fights fungi. IST Newsletter, March 1956, v.1, no.2, p.6.

Filipin was discovered among organisms that thrive in the Philippines. Laboratory experiments conducted by the horticultural and chemical departments of the University of Illinois and the Upjohn Co. showed that it is effective against 13 human pathogenic fungi and many plant attacking fungi. It showed no activity against bacteria.

615.43:615.78

148. A pharmacognostical study of Phaeanthus ebracteolatus (Presl.) Merrill, Angelina C. Belisario and Maria Pastrana-Castrence. Journal of the Philippine Pharmaceutical Association, Jan.-April 1955, v.42, no.1-4, p.17-34. plates. 13 refs. (Part of a dissertation submitted to the Graduate School, UP, in partial fulfillment of the requirements for the degree of M.A. (Botany) 1955. Paper read at the 1956 National Convention of the Philippine Pharmaceutical Association held in Naga City, April 15, 1955)

Phaeanthus ebracteolatus (Presl.) Merrill, locally known as "kalimatas", was obtained from the Makiling National Park, Los Baños, (Laguna). A complete morphological description of the plant is given.

Histological study of the powdered bark revealed the presence of: (1) numerous yellow stone cells, up to 176.4 microns in length and 41.4 microns in width, with thick, strongly lignified and lamellated walls, containing monoclinic crystals in their lumens; (2) thick-walled bast fibers, 16.2-36 microns wide; (3) starch; (4) calcium oxalate crystals in monoclinic prism from 18-43.2 microns in length and 10.8-32.4 microns in width; (5) starch grains, 2 to 3 compounds, and (6) cork tissues. The drug tasted very bitter.

Alkaloids were found present in the cortical parenchyma of the stem bark, the root bark, and also in the leaves; none was found in the wood. Other tests confirmed the presence of: (1) fat globules in the phelloderm of the bark and raw parenchyma of the wood; (2) tannins in the cortex and medullary rays of the bark and parenchyma of the leaf; (3) starch grains in the parenchyma of the leaf, bark, and wood; and (4) lignin in the stone cells in the cortex and phloem region of the bark, walls of the fiber, vessels and trachoid of the wood.

An analysis of the organic matter obtained gave the following results: 0.023% foreign organic matter, 6.76% total ash, 0.28% acid-insoluble ash, 10.82% moisture, and 42.21% crude fiber.

615.43:615.78:582.937

149. Macrophylline, a new alkaloid from Alstonia macrophylla Wall. Francisca Manas-Santos and Alfredo C. Santos. Natural And Applied Science Bulletin, June 1936, v.5, no.2, p.153-157.

(Part of a thesis presented by Mrs. F. Manas-Santos to the Committee on Graduate Studies of the UP, 1936, in partial fulfillment of the requirements for the degree of M.S.)

About 1.21% total alkaloids was extracted with 95% alcohol from the powdered bark of Alstonia macrophylla Wall. Macrophylline was obtained in the form of prismatic needles which melted at 267-268°C. It dissolved fairly in $CHCl_3$ and CH_3OH and only very slightly in ether and C_2H_5OH. Some color reaction of the alkaloids were studied and several salts were prepared namely, the chloroaurate, chloroplatinate, picrate, and methiodide.

615.43:661.185

150. A comparative study of methylcellulose and gum acacia as emulsifying agents in the preparation of castor oil emulsion. Angelita V. de Guzman. Manila, University of Santo Tomas, 1959. 70p. table. 40 refs. (Thesis. M.S. in Pharmacy)

Methylcellulose and gum acacia were used separately as emulsifiers in 30%, 40%, 50%, castor oil preparations. The proportions of the emulsifer and oil was maintained at 1:4 for acacia-castor oil and 1:5 for methylcellulose-castor oil. The preparation of 50% castor oil with methycellulose was discontinued because it became extremely thick that hand homogenization was quite difficult. All emulsions were stored in 3-oz clear glass bottles at room temperature in a dark place and later evaluated by determining their globule size, viscosity, rate of creaming, pH, color, and odor.

Tabulated results show that the acacia-stabilized emulsions possess finer globules although very much less viscous and with faster rate of creaming than the methylcellulose-stabilized emulsions. The acacia-stabilized emulsions, which were originally acidic, became slightly more acidic on aging; while the methylcellulose-stabilized emulsions remained neutral within the one-month period of storage at approximately pH 7. It was noted that increasing the percentage of castor oil in both preparations but maintaining the ratio of oil and emulsifiers, increased the viscosity of the resulting emulsions and lessen the extent of creaming. Both the methylcellulose and gum-acacia emulsified preparations remained white. No marked change in odor was observed except the faint color of "tangan-tangan" oil. The preparation of 30% castor oil using a mixture of the 2 emulsifiers did not improve the emulsifying efficiency of either one of them. No advantage was observed by using a combination of the two emulsifiers.

The following conclusions were derived from the experiments: (1) from the pharmaceutical standpoint, both acacia and methylcellulose have their own advantages as emulsifying agents for castor oil; (2) from the economic viewpoint, methylcellulose is preferable because a much smaller amount of it is sufficient to produce a satisfactory emulsion of castor oil; (3) acacia is preferable if fineness of the dispersed oil globules and medium viscosity are to be considered; and (4) methylcellulose has two advantages: slower rate of creaming and remains neutral for a period of one month.

MEDICAL INSTRUMENTS AND SUPPLIES

615.46

151. Experiences in the use of non-absorbable sutures. I. Alloy stainless steel wire sutures. Luis F. Torres, Jr. and Porfirio M. Recio. Journal of the Philippine Medical Association, Jan. 1948, v.24, no.1, p.33-36. 11 refs. (Paper read at the Section on Surgery, 40th Annual Convention of the Philippine Medical Association held in Manila, May 1947)

Alloyed stainless steel wire

suture was successfully used in 33 major operations. There was no case of wound disruption, and the wounds healed completely (except the site of drainage), 7-10 days after the sutures were removed.

The advantages of alloyed stainless wire sutures are: (1) it does not tarnish, corrode, and it is absolutely impermeable and exerts no capillary action; (2) it is un-oxidizable and is not affected by blood, normal salt solution, plasma or tissue fluids; it causes minimal tissue reaction and is well tolerated by tissues; (3) it has a tensile strength of 2½ lb/unit dia.; (4) it can be easily and repeatedly sterilized without in the least affecting its tensile strength or other properties; (5) it is cheap; (6) easy to handle, pliable and much less brittle than Ag; (7) produces solid closure of the wound; and (8) early post-operative ambulation is made possible without any fear of wound disruption. The wire should not be used for renal parenchyma or the vesical wall.

615.46

152. Experiences in the use of non-absorbable sutures. II. Abaca fiber sutures. Porfirio M. Recio. Journal of the Philippine Medical Association, Jan. 1948, v.24, no.1, p.37-38. 2 refs. (Paper read at the Section on Surgery, 40th Annual Convention of the Philippine Medical Association held in Manila, May 1947)

Ungraded stripped abaca fiber was used on 55 unselected cases of appendectomies, either as an interrupted suture, as ligature, or as a matter of routine for all layers starting from the peritoneum. There was no case of wound infection, wound disruption, induration, increase in the post-operative pain or any post-operative complication that could be ascribed to the suturing material. The material was considered non-irritating, non-absorbable, and of moderate tensile strength.

No conclusions were made, although the results of the study were satisfactory.

615.47

153. A pneumothorax apparatus. M. B. Lara. Journal of the Philippine Islands Medical Association, Aug. 1939, v.19, no.8, p.505-509. illus.

The apparatus described was devised by Dr. Lara of the (North Negros Sugar Co. Hospital, Manapla (Occidental Negros). It is simple, portable, sturdy, effective, and inexpensive. In place of the liquid air filter, it utilizes a series of dry cotton air filter sterilized in dry heat, the last one in the series nearest the patient being changed for every patient treated. With proper manipulation of the clamps, compression as well as decompression can be performed with the apparatus. The apparatus has been successfully used since 1938.

PHARMACODYNAMICS

615.53:616-002.73

154. Efficacy of the plancha, or infiltration, method of treatment in early cases of leprosy. Casimiro B. Lara and C. Nicolas. Journal of the Philippine Islands Medical Association, Sept. 1929, v.9, no.9, p.321-326. table.

With the plancha or infiltration method, the number of injections to be given is determined by the size of the lesion to be infiltrated; each injection should produce a wheal not larger than 1 cm. sq. The total dose should not exceed twice the usual intramuscular dose of 4-5 cc.

The results of the treatment of 5 early cases and one slightly more advanced case of leprosy indicated the effectiveness of the plancha method, as evidenced by the quick recovery (1-2 months) of four of the early cases. It was concluded that the method is even more effective than the intramuscular and subcutaneous methods in early cases of leprosy. 6 case reports are presented.

615.7:582.282.23:616.39
155. Value of yeast in the treatment of beriberi. Wenceslao Vitug and Gonzalo F. Austria. Journal of the Philippine Islands Medical Association, Dec. 1936, v.16, no.12, p.731-737. tables, plates. 2 refs. (Paper read before the 33rd annual meeting of the Philippine Islands Medical Association held in Iloilo, Dec. 27, 1935)

7 cases of beriberi (4 of the cardiac type, 2 rudimentary type and 1 of the paretic form) were treated with either tablets of dried brewer's yeast or fresh yeast, at the PGH Medical Service. An initial dose of 9 tablets to 3 cakes of the fresh yeast was given and later increased according to the severity of the cases. The most satisfactory curative effect of yeast was observed in the cardiac type, in which the symptoms disappeared remarkably in 2-4 days of treatment. In rudimentary beriberi, the symptoms were controlled or disappeared completely in a relatively short time; in cases were the disease had been of longer duration, the symptoms were controlled in 5 days, but recurred upon suspension of the drug.

The encouraging results also revealed that yeast is superior to hydrolyzed extract of tikitiki.

615.7:616-006.6
156. H.11 therapy: preliminary report. MD Journal, (I) June 1957, v.6, no.6, p.240-246; (II) July 1957, v.6, no.7, p.296-302.

A research was conducted by the San Juan de Dios Hospital for the purpose of evaluating the therapeutic qualities of the British drug, H.11, in the treatment of malignant growths.

In the 22 cases of advanced inoperable carcinoma which have been treated with either H.11 extract or tablets, a large majority of the patients are relieved of pain that narcotics were eliminated. The general condition of the patients were greatly improved as demonstrated by increase in weight, appetite, and energy, and the development of a feeling of well-being. The beneficial effects which may be obtained from surgery and radiotherapy were also observed with H.11 therapy. Surprising results were obtained in one case of Hodgkin's Granuloma and one case of Paget's disease suggest that more extensive clinical trials of H.11, particularly in the treatment of Granuloma, are justified.

H.11 extract was administered deep subcutaneously in doses of 2.5-3.0 cc/day, depending upon the condition of the patient and which was then reduced to 2.00 cc after definite clinical improvement was observed. The minimum tablet dosage was 2 H.11 daily.

It was emphasized that while palliative effects are experienced quite readily with H.11, nevertheless, treatment, should be continued uninterruptedly for 6 months to one year, to obtain the full benefit to be derived therefrom.

615.7:616-009.1
157. ACTH therapy of Bell's palsy. Rodolfo V. Guiang and Maria A. Leones-Guiang. Journal of the Philippine Medical Association, April 1955, v.31, no.4, p.177-178. 4 refs. (Paper presented at the 47th annual meeting of the Philippine Medical Association held in Manila, April 26-30, 1954.

The case report of a 58-year old man with complete paralysis of the right side of the face, treated with ACTH, is presented. Definite improvements in the nerve function was noticed 2 days after the commencement of the therapy and approximately 80% of facial paralysis was cleared after 12 days. Complete disappearance of paralysis was noted 19 days after the treatment. Though the results are not conclusive, the use of the drug is urged in a much larger dose than

5 U.S.P. units of ACTH per day.

The efficacy of the drug may be attributed to its ability to reduce edema and inflammatory reaction of the facial nerve and its sheath.

615.7:616.44

158. Rauwolfia serpentina as an adjunct in the pre-operative management of toxic goiter. Clemente R. Calma and Juvenal C. Trinidad. Santo Tomas Journal of Medicine, Nov.-Dec. 1958, v.13, no.6, p.403-410. tables. 17 refs.

"Serpasil" (Ciba), a preparation of reserpine, was employed in 37 cases of the diffuse type and nodular or adenomatous toxic goiter at the UST Charity Hospital. 0.25 mg Serpasil (one tablet) was given 2-3 times daily, depending upon the severity of the symptoms. The significant effects observed were bradycardia and sedation, after 2-3 weeks of treatment. The results in 37 cases indicated that the regression of symptoms was greatly enhanced and the duration of pre-operative preparation was shortened. However, the use of reserpine as a sole therapy is not advocated. The side effects attributed to reserpine are nasal congestion, headache, or fullness of the head, slight body weakness, and drowsiness.

Reserpine, together with small doses of thyroid extract, has been used to prevent recurrence after subtotal thyroidectomy with encouraging results.

615.7:617.7

159. Recession of malignant exophthalmos with Deltacortone. Paulo C. Campos. Journal of the Philippine Medical Association, Nov. 1956, v.32, no.11, p.635-658. 14 refs. (Paper read at the 49th annual meeting of the Philippine Medical Association held in Manila, April 17-21, 1956)

2 case reports on hyperophthalmopathic Grave's disease, treated with prednisone (Deltacortone) in the PGH, are presented. It was observed that although the response to prednisone is quite striking and fairly immediate, recurrence of the disease is equally prompt upon withdrawal of the drug.

No statement was made on the possible long range effect of prednisone on exophthalmos and on the body in general.

615.71:582.883

160. A brief study of the reduction of blood sugar in alloxan-induced hyperglycemic dogs by the fruit pulp extract of duhat, Eugenia cumini (Linn.) Druce. Carmen A. Reyes. Journal of the Philippine Pharmaceutical Association, June 15, 1955, v.42, no.6, p.107-113. 6 refs. (Paper read during the Scientific Meeting of the Annual Meeting and Convention of the Philippine Pharmaceutical Association held in Naga City, April 15, 1955)

Ripe fruits of Eugenia cumini locally known as "duhat", were obtained from Antipolo (Rizal) from which the extract was prepared by expressing the juice by hand. The insulin-like property of the extract was tested on 7 dogs under alloxan-induced hyperglycemic condition and also in hypoglycemic state. Results revealed that the "duhat" extract reduced the blood sugar level in both states. A dose of 5 cc of "duhat" concentrate, injected intravenously, brought about a reduction of blood sugar by as high as 46.45 mg%. The extract when injected intramuscularly produced a gradual fall of blood sugar concentration. It was found that an infusion, of the "duhat" fruit pulp extract, when given orally, produced a more lasting effect. However, like insulin, the effect of "duhat" was only transitory in nature.

615.71:616-089

161. Clinical experiences with induced hypotension in radical surgery using bistrium (hexamethonium bromide). Quintin Gomez, Ariston Cortez and Irineo Lawas. Acta Medica Philippina, Oct-Dec. 1953, v.10,

no.2, p.397-406. graphs. 9 refs. (Paper read in the 47th annual meeting, Philippine Medical Association, April 28, 1954)

Seven case reports of induced hypotension with bistrium during radical surgery done in the PGH are presented. Within 10 minutes of administration, there was marked drop in blood pressures, and the pulse rate remaining normal or even slower. Pallor dilatation of pupils to as much as three times the original size, warm dry skin and a slightly delayed capillary refill time were observed. No cyanosis was noted. Recovery time from anesthesia was not prolonged. No marked change in hemoglobin readings were observed, thus blood loss was greatly reduced. In two cases, the post-operative urinary output was normal. Operating time was reduced, the shortest time being 2 hrs. and 10 min. as in the Wertheim-Reiss cases. It was observed that the technique is not suitable for markedly hypertensive individuals, thus it should be applied in properly selected cases. In 4 cases, the patients complained of slight blurring vision and dizziness. 2 of the 7 patients under study died.

Bistrium (hexamethonium bromide) has been found 25-35 times stronger than TEA, which is a simple quaternary ammonium compound, and has no cardiac action unlike TEA. It possesses no significant pharmacological actions other than its action on the autonomic ganglia. Other important properties of hexamethonium that need consideration are: (1) its relatively poor intestinal absorption, (2) tolerance that body acquires for it after some length of usage which may necessitate dosage increase to 10 times the starting dose or more, and (3) its excretion solely by the kidneys.

615.71:616.15

162. Oral protoveratrine in the treatment of hypertension. Mariano M. Alimurung and Maria Z. Grajo. Santo Tomas Journal of Medicine, Sept.-Oct. 1954, v.9, no.5, p.352-362. tables, graphs. 16 refs. (Paper read at the scientific meeting, UST Medical Association, Nov. 19, 1953)

Oral protoveratrine was first tried in 1953 on 10 selected cases of hypertension with complications in the heart, pulmonary edema and cerebrovascular accident. The results indicated that it is a potent hypotensor, producing significant and marked drop of blood pressure. It also significantly slowed down heart rate to normal. Nausea and vomiting were frequently observed; restlessness, some psychic disturbances, substernal warmth or discomfort were also noted in few cases; the dosage used ranged from 0.5-1.5 mg following Hoobler's dosage schedule.

While not curative, protoveratrine is useful in cases where surgical or dietary treatment is unsuccessful or not applicable, and where severe hypertension or its complication fail to respond to other forms of medicinal therapy.

615.71:616.15

163. Experiences with chlorothiazide in hypertension. Antonio M. Samia, Angelina H. Paulino-Abundo and Rogelio M. Samia. Journal of the Philippine Medical Association, Dec. 1959, v.35, no.12, p.811-820. tables, graphs, diagr. 16 refs. (Paper presented at the 52nd Philippine Medical Association annual meeting held in Davao City, May 7-10, 1959)

The effect of chlorothiazide (Chlotride) was tried on 16 patients with essentially hypertension. The drug was found effective given alone or in combination with some other anti-hypertensive agents. Lowering of both systolic and diastolic blood pressures are observed in all the cases within a few days, with an average fall of 27.5% for systolic and 21.3% for diastolic.

The anti-hypertensive effect of the drug was equal in all the cases regardless of the sodium chloride contents in the diets. The fall in blood pressure was gradual and was characterized by marked fluctuation. Moreover, it had little effect on blood pressures approximating that of normal. The average divided dose used was 1.5 g daily. No side effects attributable to Chlotride alone were observed.

615.71:616.15:599.742.1

164. Anti-hemoptic drugs: II. Action of emetine on the pulmonary circulation. Horacio R. Estrada, Conrado Dayrit, Gerardo V. de Leon, Ernesto V. Valdez, Romulo Guevara and Lucilo R. Roman. Acta Medica Philippina, July 1956-June 1957, v.13, no.1-4, p.357-374. tables, graphs, 9 refs. (Paper read at the meeting of the Philippine Heart Association, Science Hall, UP-PGH Medical Center, Sept. 20, 1956)

The results of the actions of emetine on the heart and pulmonary circulation in 45 artificially respired anesthetized dogs were studied. The applicability and danger of emetine as an antihemoptic agent are discussed. It was shown that emetine lowers both systemic and pulmonic blood pressures, the hypotensive response being immediate and directly variable with the dose. Slight increase in the heart rate and prompt weakening of cardiac contractions were also observed with doses ranging from 0.05-7.5 mg/kg. No significant direct vasodilating action and hypertensive effects were noted. Emetine differed from epinephrine which is hypertensive to both arms of the circulation and from pitressin which lowers the pulmonic but raises systemic pressure. It was concluded that the mechanism by which hypotension was brought about appears to be solely due to cardiac depression.

The usual recommended dose of emetine for adults is 1/3 to 1 g subcutaneously daily or 0.5 to 1.0 mg/kg (not exceeding 60 mg/day) for 7-10 days.

615.71:616.91

165. Adrenochrome in Philippine hemorhagic fever. Renato Ma. Guerrero, Agnes de Leon and Fe Mendiola. Journal of the Philippine Medical Association, Sept. 1956, v.32, no.9, p.525-530. tables. 11 refs. (Paper read at the 49th annual convention of the Philippine Medical Association held in Manila, April 17, 1956)

14 patients (4½ to 12 years old) with Philippine hemorrhagic fever were treated at the UST Hospital for 9 months with preparations of adrenochrome, namely: Adrenosem and Cromosil. 1 cc ampule of Adrenosem was injected intramuscularly every 3 or 4 hours; 5 cc ampule of Cromosil was given 1-3 times a day depending upon the severity of the case. In 11 cases, no hemorrhagic manifestations appeared after the administration of adrenochrome. The petechiae seemed effectively controlled as no new crops appeared. The tourniquet test gave varied and unpredictable results; one case gave a negative result within 24 hours and another as late as 9 days. In 4 cases the rise of the platelet count from few or zero to normal, took from 7-8 days, in spite of clinical improvement. Only 2 cases failed to respond at all and died. These results were deemed inconclusive. It was suggested that bioflavonoids, vitamin C, cortone, and ACTH should also be indicated in the treatment.

615.71:618.3

166. Experience with veratrum viride in the treatment of toxemia of pregnancy. Pacifico E. Marcos. Acta Medica Philippina, July-Sept. 1953, v.10, no.1, p.349-357. 7 refs. (Paper read before the staff and medical students of the Department of Obstetrics, College of Medicine, UP, and PGH, Manila on Jan. 7, 1954)

Veratrum viride is a hypotensive agent gaining wide use in the treatment of toxemia of pregnancy. The record of Cincinnati General Hospital of 208 cases had only one maternal death; the report of Rhoads and Schmidt in the Maternity Hospitals of Cleveland shows a diminished mortality rate from 12.9% to 2.9%.

In the Philippine General Hospital, from Jan. 14-Dec. 24, 1953, veratrum viride was given to 20 cases of pre-eclampsia and 5 cases of eclampsia when routine or other methods of treatment for toxemias failed to give clinical improvement. In 18 cases of eclampsia, the drug was started upon admission. The dosage was individualized, starting with 0.10 cc to 0.20 cc depending upon the response and duration of effects. Veratrone, given by intramuscular injection was mixed with equal amounts of 2% procaine solution to render the administration less painful and in a few cases, oral veratrum (Veriloid, Riker) was given.

There was marked drop in blood pressure with a mean diastolic response of 50 mm Hg in all the cases, lowering of the body weight and edema in 8 cases, and reduction in proteinuria of from 4 plus to 2 plus or less even before delivery in 5 cases. In all cases of eclampsia, convulsions stopped, consciousness was regained within 1-2 hours upon administration of Veratrone, except in 6 cases where heavy sedation had been given. Cardiac function was also clinically improved. Headache, blurring of vision and other symptoms such as rales in the lungs due to pulmonary edema, were relieved within a short time after onset of Veratrone treatment. A few side effects were observed with the drug such as bradycardia, vomiting, nausea, but which were all very easily corrected. Only one case of maternal death due to eclampsia was reported. So far, there has not been a single case of death attributable to veratrum viride.

615.72:616.2

167. Observations on the use of Alevaire in 350 children with different respiratory conditions. Fe del Mundo, Juanita R. Zavalla and Nenita Oliveros. Journal of the Philippine Medical Association, Jan. 1956, v.32, no.1, p.7-14. tables, illus. 10 refs.

Pharmacologic studies on Alevaire Triton WR 1339, revealed that its value lies in its activity in lowering both surface and interfacial tension or reducing viscosity and liquefying secretions. As a detergent, it retains its detergency indefinitely in the tissues and is compatible with antibiotics, buffer salts and a variety of medications. It does not cause hemolysis of erythrocytes even in high concentrations.

A series of 350 patients (the youngest being a new-born and the oldest an 8-yr old) was treated with Alevaire at the Little Clinic (Quezon City) in June 1954. Majority of the cases had either acute upper respiratory infections with annoying cough, or acute and chronic bronchitis,and the rest other respiratory infections. Treatment was given continuously for 24 hours to those markedly ill and the others had 1-2 treatments daily for 20 min. for 3-4 days. The results were very encouraging; 72% of the cases was very much relieved or even improved after 3 successive days of treatment, while only 8% showed very little change. It was of definite value to 61% and of help to 31% of the cases. No untoward effects or allergic manifestations were observed except nausea. Only one death was reported.

Plans to improve, modify and proceed further with the studies of nebulization therapy are underway.

615.73

168. Tañgan-tañgan oil as a purgative for sick infants and children. Romulo Guevara and Artemio P. Jongco. Journal of the Philippine Medical

Association, Sept. 1941, v.21, no.9, p.423-434. tables. 3 refs. (Read before the 38th annual meeting of the Philippine Medical Association, April 26, 1941, Manila)

Results of the 9-month clinical trials made on 26 patients from PGH (15 infants and 11 children), mostly suffering from bronchopneumonia, showed that "tañgan-tañgan" oil produced 100% cathartic response, whereas imported castor oil failed in 11%-12% of the 17 cases (10 infants and 7 children). The local oil produced a greater number of stools averaging 2.14%-3.15% as compared to 1.67%-1.71% produced with imported castor oil. Nevertheless, the time of purgative action appeared early with both oils, occurring in the majority of the cases from 1-4 hours after the administration. The cathartic effects were generally over after 9-10 hours. Vomiting colic and other little untoward effects were observed with both oils. After constipation was demonstrated in 33.3%-34.6% of the "tañgan-tañgan" series but none developed this after-effect in the imported castor oil series.

The dosage used was: 2 yrs below, 10 cc; 2-4 yrs, 15 cc; 4-8 yrs, 20 cc; and over 8 yrs, 25 cc. In most cases, the whole dose was given once; sometimes, twice with an interval of ½ to one hour.

615.73:582.883:616.934-053.2

169. The use of guava powder in the management of diarrhea of infancy. Pablo U. Abella. Journal of the Philippine Medical Association, June 1958, v.34, no.6, p.353-357. table. 5 refs. (Paper presented at the scientific sectional meeting of the 51st annual meeting of the Philippine Medical Association, held in Quezon City on April 30-May 4, 1958)

Powdered guava rind was tried as an adjuvant in the therapy of non-specific diarrhea in 100 infants and children whose ages ranged from 1 month to 4 years. The results showed improvement within 18 hours in the mild cases, and within 30 to 48 hours for the moderate and severe cases, respectively. No toxic effects were observed except blanching of the lips and tympanism in 12% of the cases especially in the severely dehydrated and weak patients.

615.73:616-008

170. The use of Largactil in vomiting of children. Carmelita R. Belmonte, Natividad N. Alimurung, Isidora Y. Zalamea and Mauro de Leon. Journal of the Philippine Medical Association, June 1956, v.32, no.6, p.300-308. tables, graphs. 10 refs. (Paper read at the 49th annual meeting of the Philippine Medical Association, held in Manila on April 17-21, 1956)

Vomiting was controlled promptly in 83 out of the 85 cases (infants and children) treated with Largactil (chlorpromazine) given orally or intramuscularly in doses ranging from 0.5 mg-3 mg/lb body weight/day in 3-8 equally divided dosage. Only 2 cases were not suppressed. Drowsiness was the only side effect complained of in 15 cases. It was deemed advisable to begin the treatment with a dose of 0.5 mg/lb/day and temporarily fix at 1-2 mg/lb/body weight/day. It was also indicated that the parental dose should be at least ½ of the oral dose to avoid drowsiness.

These results confirm the findings of foreign authors as to the efficacy of Largactil as an antiemetic.

615.73:616.34

171. The use of Bentyl hydrochloride in Filipino children. Renato Ma. Guerrero, Rosalina Cancio and Rolando Songco. MD Journal, March 1954, v.3, no.3, p.120-123. tables. 6 refs. (Also published in Philippine Journal of Pediatrics, April-June 1953)

Bentyl syrup and powder were given in 76 cases with colic, pylorospasm, abdominal pain due to food allergy and ascariasis, vomiting, and postprandial diarrhea with vomiting, observed at the Sto. Tomas University Hospital and the White Cross Preventorium. From this series it was shown that the effective dose is about 1-2 mg/kg body weight. About 51 of the cases were completely relieved of the symptoms, 17 were partially relieved and only 8 were unimproved. The only toxic effects observed were mild nausea and vomiting in 2 cases. Higher doses have also been employed without any untoward manifestations.

615.73:616.34

172. Comparative potency of some official gastro-intestinal antispasmodic as studied in experimental animals. Gerardo V. de Leon, Lucilo R. Roman, Horacio R. Estrada, Ernesto V. Valdez and Juan C. Portes, Jr. Acta Medica Philippina, July 1956-June 1957, v.13, no.1-4, p.395-415. tables, graphs. 12 refs.

The spasmolytic effects of Atropine, Methantheline, Papaverine, Glyceryl trinitrate, and Aminophylline given in concentrations varying from 1-10%, were determined in situ, on the intestinal contractions of 72 mongrel dogs (both sexes) weighing 6.4-9.8 kg. The intestinal contractions measured with a Boehnke Universal Kymograph, were artificially induced by the infusions of either Barium or Pilocarpine. Based on the average duration of their respective inhibiting effect on the intestine, Methantheline and Atropine were found to be the most potent antispasmosdic agents followed by Aminophylline, Papaverine and Glyceryl trinitrate. The threshold relaxing dose (TRD) for Atropine and Methantheline, as determined against Barium-stimulated contraction were found to be 1.0 mg/kg and 10.0 mg/kg, respectively; against Pilocarpine-stimulated contraction, TRD for Atropine was 0.5 mg/kg and 7.0 mg/kg for Methantheline. The TRD against spontaneous intestinal motility was found to be: 0.05 mg/kg for Atropine and 5.0 mg/kg for Methantheline. These experimental findings which closely agree with clinical observations in gastro-intestinal conditions characterized by hyperperistalsis spasm, and pain proved the efficacy of these spasmodics; provided they are wisely administered. Basing on weights, i.e., minutes of relaxation of the intestine per mg of drug, the order of potency is Epinephrine, Atropine, Glyceryl trinitrate, Methantheline, Papaverine, Aminophylline. However, this basis was found not as practical and as useful as the first basis from the clinical standpoint.

Recent reports show that Methantheline is superior to Atropine in certain spastic gastroenterological conditions for which the two agents are generally indicated.

615.73:616.379

173. Diabetic coma. Conrado Dayrit. Acta Medica Philippina, Oct.-Dec. 1952, v.9, no.2, p.159-172. table. 13 refs. (Paper read at the Postgraduate Assembly, PGH, Feb. 18, 1952)

Diabetic coma is caused by insulin deficiency which results in dehydration and acidosis. Three most important first aid remedies are insulin, fluids, and electrolytes. Regular or crystalline insulin should be given at an initial dose of from 20-400 units and subsequent doses depending upon the length of interval between administrations and the severity of the coma or until clinical improvement is indicated. To correct dehydration, 4-5 liters/day of NaCl or Ringer's solution should be given in the first days of treatment and subsequent doses depending upon the degree of dehydration. The infusion should be given at the rate of 1 liter/hr or 200-300 drops/min. In cases of marked dehydration a larger dose should be given. Contrary to some beliefs, glucose should be given after the first 6 hours of treatment, when ketosis is controlled and hyperglycemia starts to fall. Glucose may be given as an infusion (1000 cc of 5% solution, properly protected with 25 units of insulin) or if the patient is able to swallow, sweetened drinks may be given instead. The administration of potassium is also advised on or about the 4th or 5th hour of treatment to correct hypopotassemia. 4-5 doses of one-gram KCl orally every hour is prescribed. Intravenous infusion of potassium should be done with utmost care. Alkalies are still not indicated in diabetic coma as it neither hastens recovery nor improves chances for survival. If ever alkalies are given a try, to correct acidosis, dosage should not exceed 60 cc/kg of an M/6 solution of sodium lactate. Cases with severe shock that do not respond to the aforementioned therapeutic measures may be given blood transfusions and blood plasma.

Gastric lavage, enema and antibiotics are supplementary measures mentioned. The common practice of applying hot water bags and warm blankets has been found harmful in cases of shock.

615.73:616.379

174. Plantisul tablets in the treatment of diabetes mellitus. Faustino Garcia. Journal of the Philippine Medical Association, May 1955, v.31, no.5, p.216-224, graphs, table. 6 refs.

Plantisul tablets of ½ inch size weighing 0.75 g were found to have a strength equivalent to 10 insulin units. The hypoglycemic effect of the tablets were demonstrated in 4 diabetic patients placed under adverse conditions. The blood sugar levels of all patients decreased after oral administration of 5-9 tablets daily for a week or more. Plantisul tablets are effective in ordinary and resistant cases. In case of diabetic coma, which requires over 200 units, insulin is still the choice drug.

Investigations on the deterioration and its prevention, and studies on the isolation of the active principle in pure or at least purified form are still being carried out. There is a prospect of doubling its potency to 20 units.

615.73:616.379

175. Plantisul compared with insulin. Faustino Garcia. Journal of the Philippine Medical Association, June 1955, v.31, no.6, p.276-282. graphs, tables. 6 refs.

Plantisul, a plant-insulin, has been shown to have hypoglycemic property in animals and man given orally. The hypoglycemic effect has been observed in diabetic patients tested after oral administration of plantisul in the form of decoction, powder, capsule, solution and tablets. The plants found to have plant-insulin are: Biophytum sensitivum, "makahiyang lalaki"; Lagerstroemia speciosa, "banaba"; Syzygium cumini, "duhat"; Catharanthus roseus, "sitsirika"; Ipomoea batatas, "talbos ng kamote"; Ipomoea aquatica, "kangkong"; Andropogon citratus, grass or "paja de meca"; Tamarindus indica, "sampalok; Pithecolobium dulce, "kamachile"; and Nymphae nouchali, water lily.

The units of plantisul as determined by biological assay have been shown in 2 instances to be equivalent to insulin units. It is less toxic than insulin.

615.73:616.379

176. The clinical response to the hypoglycemic effect of oral plant insulin. Carmelo P. Jacinto, Montano Conde, Elisa R. Sulit, Jose R. Celis, Laureano Bautista and Fermin Manalo. Journal of the Philippine Medical Association, Dec. 1956, v.32, no.12, p.761-763.

8 tuberculous diabetics at the Quezon Institute were treated with Banabins. The subjects, under controlled diabetic diets, were given

6 three-hourly doses daily for a period of 1-2 months. All patients lost weights ranging from 0.8-2.2 kg, except one who gained 0.4 kg. In 2 cases, the Hanger's test became 3 plus; one case was reduced to 1 plus within 2 weeks, after continuous intake of the drug. No definite hypoglycemic effect was observed. Only 4 cases demonstrated a fall in blood glucose level, one of which had a reduction of blood glucose level from 335 mg % to 163.6 mg %. The hypoglycemic effect is produced only with huge dosage but which results in epigastric pain, abdominal pain, and generalized pruritus.

Further studies on the effective principles are deemed necessary.

615.75:582.937:616.936

177. On the effectiveness of Alstonia cortex (dita bark) in malarial fevers. Faustino Garcia. Journal of the Philippine Pharmaceutical Association, July 15, 1946, v.33, no.2, p.41-52. 17 refs.

The curative effects of powdered bark of Alstonia scholaris (Linn.) R. Br., known in Tagalog as "dita", on malarial fever were demonstrated in 24 cases of malaria (Plasmodium vivax type) in Manila in 1942-1943. Of the 24 cases presented, 23 had the attacks of chill and fever or of fever alone when first treated with powdered "dita" bark, but with subsequent administration of suitable doses (curative dose of 6 g/day), the attacks subsided in all cases. For the prevention of relapse, 3.0 g daily for 40 days was given and doses increased to even double for resistant cases. Other observations with "dita" treatment were: increased red blood cells of the patients, marked improvement of appetite, restoration of strength, and disappearance of malarial parasites in the finger's blood after 1-3 weeks. An interesting sidelight of the treatment was the expulsion of Ascaris lumbricoides in 2 cases.

The advantage of Alstonia cortex over other malarial remedies is that the administration of the doses for curative and preventive treatments produce no untoward or side effects.

615.75:616.936

178. Studies on the efficiency of chloroquine and chlorguanide as antimalarials: I. As suppressants. Howard F. Smith, Francisco J. Dy and Deogracias J. Cabrera. Acta Medica Philippina, Oct.-Dec. 1948, v.5, no.2, p.1-16. tables. 12 refs.

The study was conducted simultaneously in Sierra Madre Lumber Co. compound in San Felipe, Sta. Fe (Nueva Viscaya) and at Kamingaoan, Kabankalan (Negros Occidental) for 40 weeks. The results showed that with the dosage regimen employed, chloroquine is relatively more efficient than chlorguanide in suppressing overt malaria. Chlorguanide was found ineffective against vivax and falciparum gametocytes. With chloroquine, 8 subjects with P. falciparum were rendered negative during the treatment. The subjects under chloroquine experienced nausea, vomiting, vertigo, flatulence and a desire to stool; these untoward effects were mild, temporary and did not require withdrawal of the drug, No untoward reaction was observed with chlorguanide.

The response of the infections to both drugs, particularly to chlorguanide, was not the same in the two malarious localities, suggesting the presence of different strains of plasmodia in the Philippines.

615.76:616-073

179. Combined antibiotic-contrast agent for retrograde pyelography: preliminary report. Renato R. Espinosa. Journal of the Philippine Medical Association, Sept. 1956, v.32, no.9, p.518-520. 4 refs. (Paper read at the 49th annual meeting of the Philippine Medical

Association held on April 17-21, 1956, in Manila)

Retrograde pyelography was done using neomycin combined with a contrast agent on 23 cases (10 females and 13 males) which included hydronephrosis, renal carcinoma, renal cyst, laceration of a solitary kidney, renal tuberculosis, chronic pyelonephritis, renal and ureteral calculus, and bladder tumor. 5 g neomycin sulfate powder (Mycifradin Upjohn) was dissolved in 200 cc of either urokon or skiodan, making 2.5% solution. The results revealed that neomycin is a potent drug in the prevention of urinary infection during retrograde pyelography. Out of the 23 cases, only 4 or 17% developed flank pain which lasted less than 24 hours. One of the 4 cases proved to be due to renal calyceal overdistention resulting in pyelovenous backflow. 3 other cases complained of lumbar pain on the second day of the course. No patient developed chill or feeling of prostration. Cases with fever and flank pain were relieved subsequent to the procedure. In 17 cases, the post-retrograde pyelographic course was smooth. The pyelograms (16 bilateral and 7 one-side retrograde pyelography) in all cases were uniformly satisfactory for diagnostic purposes. No serious complication was observed in any case. Nausea and vomiting resulted in two cases, but these were attributed to sensitivity to the contrast agent rather than to neomycin.

Further investigation is urged for a more conclusive evaluation of neomycin in retrograde pyelography.

615.76:616.973

180. Observations on the use of ilotycin tablets on the treatment of acute gonorrhea. Emiterio M. Laquis, Gavino Sepulveda, Jr. Leandro M. Ibarra and Evangelina Soto-Gonzales. MD Journal, Aug. 1956, v.5, no.8, p.315-316. tables.

Observations were made at the Manila Rapid Treatment Center, from Oct. 25-Dec. 19, 1955, in the treatment of acute gonorrhea with ilotycin. Results show that all 27 patients (17 male and 10 females) were rendered negative, by direct smear examination, 24 hours after the administration of the tablets. The male patients were given a single dose of 2 g each while the females were given an initial dose of 400 mg and then 400 mg every 4 hours until each received a total of 2 g. No untoward effects were observed or complained of by the patients, either during or after the administration.

615.777

181. Insecticide test on derris. Virginia B. Uichanco. Journal of the Philippine Pharmaceutical Association, May 1932, v.4, no.5, p.157. table.

Using Toxoptera aurantii Boyer as test animal, it was shown that Derris elliptica is more effective as an insecticide than Derris philippinensis.

615.777:582.842.3:616-002.73

182. Treatment of the chief types of cutaneous lesions in leprosy by the plancha, or infiltration method. Felix T. Velasco, Jose M. Alonso, Gabino Limkako, Guillermo Fernandez, and F. T. del Rosario. Journal of the Philippine Islands Medical Association, Sept. 1929, v.9, no.9, p.327-335. tables, illus.

About 100 cases each of 3 types of leprous skin lesions - active macules, infiltrations and nodules, were treated for 10 months by the combined infiltration and intramuscular methods. The drugs used were the purified oil and the iodized ethyl esters of Hydnocarpus wightiana. The results revealed that the active macules responded well to the treatment, followed by the infiltration. No negative results were found in the nodules. The iodized ethyl esters gave slightly better results than the pure oil. It was found that the combined intramuscular and infiltration methods of treatment are more effective than the intramuscular method alone.

615.777:582.842.3:616-002.73

183. Efficacy of ethyl chaulmoograte, ethyl hydnocarpate and the ethyl esters of the total fatty acids of Hydnocarpus wightiana oil. Bonifacio de Vera and Casimiro B. Lara. Journal of the Philippine Islands Medical Association, Sept. 1929, v.9, no.9, p.307-317. tables. 15 refs.

The 3 preparations were tried on 25 (male adults) cases of leprosy with definitely active lesions of the skin or nasal mucosa, or both, and positive for M. Leprae. The esters were injected intramuscularly at initial dose of 1 cc a week and then increased by 1 cc until a dose of 4 to 5 cc was reached.

The results indicated that the single esters are superior to the mixed ethyl esters, as evidenced by the greater number of apparent cures in the series treated with single esters, which probably was due to their higher content of active constituent. It was not possible to tell which of the single esters is the more active. Some untoward effects were observed.

Further clinical trials of single esters is suggested; ethyl chaulmoograte is preferred for economic reasons. Ethyl chaulmoograte was prepared from the chaulmoogric acid of Hydnocarpus alcalae C. DC. which is native in the Philippines.

615.777:616-002.73

184. Progress in antileprosy treatment at Cebu Treatment Station: second progress report. F. Eubanas. Journal of the Philippine Islands Medical Association, Dec. 1929, v.9, no.12, p.452-457. tables. 5 refs. (Paper read at the monthly meeting of the Manila Medical Society, Oct. 7, 1929)

Of the 341 patients (235 males and 106 females) treated in 1929, 69 were negative; 87 were markedly improved, 52 moderately improved, 53 slightly improved, 65 stationary, and 15 had become worse. The results were better than previous years. The drugs employed were: W.E.I., 0.5%; W.O. (purified); W.E. Cr.; Mercado mixture, Antileprina; Alepol; and buffered sodium hydnocarpate. The results with buffered sodium hydnocarpate proved its value in early cases of leprosy. However, this drug can not be used in the plancha method.

615.777:616-002.73

185. Treatment of acute leprous neuritis with iodized wightiana ethyl esters (with report of cases). M. Lagrosa, J. M. Alonso, J. O. Tiong, and A. Paras. Journal of the Philippine Islands Medical Association, Feb. 1935, v.15, no.2, p.87-94.

1 to 2 injections of 2-4 cc with an interval of 1 week, in and around the affected nerves was found sufficient to relieve pain attending leprous neuritis within an average of 10 days. The neuritic pain rarely occurred in 10 months. With the disappearance of pain, the patients gained in strength of the extremity injected, decrease in anesthesia and numbness, and straigthening of contracted fingers. The pain on injection can be lessened by using a local anesthetic like benzocaine.

Although injection with dilester relieved the pain in a shorter time with iodized wightiana ethyl esters, the pain recurred and no other marked improvements were observed in the 4 cases treated.

615.777:616-002.73

186. Local effects of injection of iodized wightiana ethyl esters and wightiana oil around nerve trunks. J. O. Nolasco. Journal of the Philippine Islands Medical Association, Nov. 1934, v.14, no.11, p.421-433. illus. 12 refs.

Clinical studies on 7 monkeys demonstrated relief in neuralgic pains and anesthesias in leprosy following perineural, intradermal, and subcutaneous injections of the affected part. The injection of the 2 drugs around the ulnar nerve trunks produced inflammatory reactions in the form of fibrinocellular exudates and purulent collections. Histological examination of the tissues revealed that the injected drug were either in the form of cysts or phagocytized by large mononuclear leukocytes found in the loose perineural connective tissues and some in the external portions of the epineurium, but not within the nerve trunks. Generalized slight diffuse sprinkling of eosinophiles, a few neutrophiles edema and cellular infiltrations mainly eosinophiles, and round cells were also observed around the larger blood vessels within the nerve trunk. Both drugs diffused upwards and downwards along the course of the nerve apparently following the fascial sheaths along its course. Iodized ethyl esters gave more abundant mononuclear cellular reaction in the perineal connective tissues than the wightiana oil.

It was suggested that clinical trials of some other mildly irritating drugs be also made.

615.777:616-089

187. The use of trypsin in surgery. Joseph M. Miller. Journal of the Philippine Medical Association, Jan. 1958, v.34, no.1, p.20-25.

Trypsin is a crystalline enzyme, exhibiting its greatest activity at about a pH value of 7. In any of its preparations it acts directly upon plasminogen forming plasmin which in turn hydrolyzes fibrinogen and fibrin. Prothrombin, thrombin, albumins, and globulins are also attacked by the enzyme. It partially digests pus and necrotic tissue and dissolves mucus to a slight degree. It acts slowly and incompletely upon collagen and is inactive upon and does not harm living tissues.

Trypsin will be found useful in the management of collections of blood and of wide variety of acute and chronic infections when combined with sound surgical judgment. Best results in the treatment of an abscess will be obtained when trypsin is applied locally and is given systematically. The use of trypsin is not a substitute for proper surgical treatment.

615.777:616.5

188. Cortone-therapy in exfoliative dermatitis. C. Peñaflor and J. Faustino. MD Journal, Aug. 1953, v.2, no.8, p.893-895. illus.

A case report is presented of a 76-year old woman who had been suffering of progressive exfoliative dermatitis with the entire area of of the right foot, joint and 2/3 of the right leg already affected.

Cortone therapy was prescribed after practically all dermatological medicines and antibiotics have been tried. Cortone was given parenterally, 100 mg every 8 hr. in the first day, then 100 mg every 12 hr. for 2 days and one dose of 100 mg every 24 hr. till the end of the 3-week treatment.

Remarkable changes and drop were noticed in the subjective and objective symptomatology of the case. Diminished swelling, remission of eruption, drying and scaling off, and a feeling of comfort and ease on the part of the patient were observed. Subsequent return of the foot to normal followed after the 3rd week.

615.777:616.973

189. Calcium chloride in the treatment of gonorrheal epididymo-orchitis. C. R. Ylanan. Journal of the Philippine Islands Medical Association, April 1929, v.9, no.4, p.128-132. 4 refs. (Paper read at the monthly meeting of the Cebu Medical Society, Dec. 12, 1928)

9 cases of gonorrheal epididymo-orchitis were successfully treated with 10% $CaCl_2$ solution. A dose of 5-10 cc was given intra-

venously every 3 days. Pain, fever, discomfort, swelling and other annoying symptoms were markedly lessened or had disappeared completely after 2-4 injections. No untoward reactions were observed. However, the patients felt a sensation of heat in all parts of the body during the injection, but which disappeared completely after injection.

615.777:616.986
190. Chloromycetin in yaws. Perpetuo D. Gutierrez and Manuel C. Fernandez. Acta Medica Philippina, April-June 1952, v.8, no.4, p.257-261. 5 refs. (Paper read before the 45th annual meeting, Philippine Medical Association, May 1952)

17 cases (male and female whose ages ranged from 4-12) of primary and secondary yaws were treated at the Philippine General Hospital with varying daily doses (250 mg, 500 mg, 700 mg, and 1000 mg) of chloromycetin. Tabulated results show that those given 1000 mg required the minimum of 10 days for complete clinical cure. In all cases the mother yaw, particularly when secondarily infected, was the last to heal, whereas the macular and papular types of secondary lesions were earliest to clear up followed by the nodular eruptions. It was also noted that the disappearance of the spirochetes occurred simultaneously with the drying up of the lesions. One patient developed an unmodified case of chicken pox during the treatment. Another returned (8 months after treatment) with secondary yaws and blood Kahn was again 200 units. It could not be determined whether this was a case of relapse or reinfection because the patient came from an endemic area.

Chloromycetin was found to be less toxic and easy to administer than penicillin and the arsenicals.

615.777:616.995
191. Two rare human tapeworm expelled by "Hetrazan". Eusebio Y. Garcia. Medical Reporter, Jan.-March 1952, v.4, no.1, p.12-14. illus. 1 ref.

2 rare human tapeworms, Dipylidium caninum and Bertiella studeri, were successfully expelled in the treatment of ascariasis with Hetrazan (Lederle), from a 2-year old and from an 11-year old Filipinos. This action promises a new addition to its wider spectrum of anthelminthic activity.

615.777:616.995
192. Tetrachlorethylene treatment of ankylostomiasis. Ricardo D. Molina and Hermogenes A. Santos. Journal of the Philippine Medical Association, Sept. 1946, v.22, no.9, p.385-387. 13 refs. (Paper read at the 39th annual meeting of the Philippine Medical Association held May 10, 1946)

Tetrachlorethylene is very slightly absorbed when given orally. By inhalation, it is easily absorbed and produces general anesthesia, without causing any pathological change. Unlike CCl_4, it does not produce any symptoms or demonstrable pathological change in dogs, given orally in therapeutic dose, whether alone with alcohol or in conditions of high or low Ca balance. It has the same contraindications as CCl_4.

Results of 32 cases treated with tetrachlorethylene revealed its efficacy as an anthelminthic. No untoward effects were observed, except for dizziness and slight exhilaration in 2 cases.

615.777:616.995
193. Studies on paragonimiasis. VI. Treatment of experimentally infected cats with emetine and aralen. Mariano G. Yogore, Jr. and Ernesto F. Cabalteja. Acta Medica Philippina, April-June 1958, v.14, no.4, p.203-220. illus. 12 refs.

13 cats were each infected with 25 Paragonimus westermani metacorcariae obtained from a crab. Five months after, 4 were treated with aralen hydrochloride (4 mg/kg)

daily, 4 with emetine (1 mg/kg), and 5 with the combination of aralen and emetine. From the stool and autopsy examinations, the following observations were made: (1) aralen neither killed nor stopped egg-laying worms, (2) emetine killed all worms in the lungs of 2 cats and reduced the worm burden in 2 other cases, and (3) aralen-emetine combination resulted in the death of all worms in the lungs of 4 cats and a slight reduction in the worm burden of the 5th cat. From these findings, aralen was rated a complete failure as a chemotherapeutic agent for paragonimiasis; whereas, emetine was found to have a definite specific value in the treatment. Although the aralen-emetine combination gave better results considering the number of worms killed (74%), it was believed that this could have been due to emetine alone, as there was no evidence to show that aralen enhanced the effectiveness of emetine against paragonimus.

The action of emetine, therefore, is dual: in utero "egg-destroying" and parasiticidal (killing of worms). The parasiticidal action of emetine is proportional to the worm burden; thus, the success or failure of emetine hinges on the severity of infection as already discovered by some Japanese investigators.

615.778:615.53

194. Latest results with sulphone drugs at the Central Luzon Leprosarium, Novaliches, Rizal. Jose N. Rodriguez. Journal of the Philippine Medical Association, Sept. 1949, v.25, no.9, p.435-440. 10 refs. (Paper read at the monthly meeting of the Philippine Society of Hygiene and Public Health held in Rizal City, June 22, 1949)

A daily dose of 2-3 g of promin was best tolerated even by children. Of the 27 cases studied, 81.5% were improved and 18.5% were unaffected but none became worse. Not one case became bacteriologically negative. The average recommended dose of 5 g was not tolerated due to the frequent occurrence of lepra reaction and mild degree of nutritional anemia. It was found that hemoglobin determination was sufficient in most cases to serve as a guide in the treatment.

The average optimal daily dose of diasone was 3 pills. The results in 72 cases studied were about the same as that of promin, although a relatively greater number were markedly improved and 6% were bacteriologically negative. It is important that increasing of dosage be done gradually.

Diamidin was found just as potent but milder than diasone. There were less complaints of nausea, headaches and weakness.

The combination of promin and diasone or diamidin did not give any synergistic effect.

615.778:616.2:576.8

195. Sulfa methoxypyridazine (Kynex) in bacterial respiratory infections in children. Rolando S. Songco, Felix A. Estrada, Agnes de Leon and Mauro G. de Leon. Journal of the Philippine Medical Association, July 1957, v.33, no.7, p.520-525. tables. 6 refs.

Experiments in dogs, rabbits and mice revealed the following properties of Kynex: (1) high solubility in urine; (2) good absorption from the gastro-intestinal tract; (3) very slow urinary excretion; (4) poor acetylation; (5) good penetration into the brain; and (6) an antibacterial activity equal to that of sulfadiazine. It was also shown that the therapeutic blood level of 5-10 mg % in dogs can be attained with doses of 100 mg/kg/day. Toxicity was observed at a dosage of 250 mg/kg/day after 2-7 weeks.

Clinical trials at the UST Hospital on 36 cases with bacterial respiratory infections indicated the effectiveness of Kynex. A single dose of 0.20 g/kg body weight was considered sufficient to establish adequate therapeutic levels in children for 96 hrs. without any toxic reaction. Its antibacterial activity and toxicity compare with the most effective sulfonamide derivatives.

615.778:616.379

196. Clinical experience with hypoglycemic sulfonamides. Paulo C. Campos and Ernesto P. Namin. Journal of the Philippine Medical Association, May 1957, v.33, no.5, p.359-368. table, graphs. 14 refs.

The effects of carbutamide and tolbutamide (Rastinon) were studied on 16 diabetic patients at the Philippine General Hospital. The results indicated better response among the older patients who were overweight or of normal weight. Better results were also noted when the illness were of longer duration.

No untoward effects were observed except for 2 cases which developed leukopenia and anemia.

615.779:595.78:616.936

197. Extract of the wings of the Philippine butterfly, Terias hecabe Linnaeus, a new antibiotic for malaria. Eusebio Y. Garcia. Journal of the Philippine Medical Association, June 1949, v.25, no.6, p.279-290. illus. graph. 5 refs. (Paper read before the Philippine Medical Association Convention held in Bacolod City, May 1, 1949)

Previous experiments on hecabepterin indicated its efficacy as an antibiotic for malaria as well as in stopping pulmonary hemoptysis of tuberculous patients.

In vitro and in vivo studies on the antibiotic in a more concentrated form was conducted using falciparum, vivax, and malariae parasites as test organisms. The study was based on the assumption that elimination of para-aminobenzoic acid in the blood of malarial patients is bound to disturb the metabolic behavior of the parasites which then succumb to active phagocytosis. In vitro studies revealed that the extract can either destroy or inhibit the growth of all 3 parasites. Complete disappearance of erythrocytic parasites was observed after 36 hr. of incubation, in the whole blood treated with the extract.

In the in vivo test, 16 vivax, 10 falciparum and 4 malariae parasites were encountered on 30 patients with parasite counts ranging from 1500-2500 per cu m of blood. The falciparum infections, with parasite counts not higher than 2500 per cu m were the most susceptible to the antibiotic action of the extract, the antibiotic activity being 52% and 45%, respectively. The extract was administered intramuscularly into the deltoids daily at a dosage of 5 cc for adults and 3 cc for children. It was indicated that the extract is also a hematinic. It is interesting to note that this is the first antibiotic extract found for a heamoptrotozoan parasite.

615.779:616-002.6:616-053.2

198. Treatment of syphilis in infants and young children. M. B. Abad. Journal of the Philippine Medical Association. June 1949, v.25, no.6, p.291-297. graph. 7 refs. (Paper read at the 1st interim session of the Philippine Medical Association, Dec. 8, 1948)

3 representative case reports of congenital and acquired syphilis treated mainly with penicillin are presented. From the results it was concluded that penicillin is the single ideal drug. It is best administered by intramuscular route at 3-hour intervals, in doses of about 20,000 u, until complete cure is achieved. It was also pointed out that a combined penicillin and arsenical therapy is beneficial.

615.779:616.24-002.5

199. The role of TB-1 (thiosemicarbazone) in the treatment of tuberculosis. Nemesio R. Calderon. MD Journal, Jan. 1952, v.1, no.1, p.19-21. (Paper read during the 1951 annual conference, Philippine

Federation of Private Medical Practitioners, on Nov. 16-18, 1951)

TB-1 (4-acetylamino-benzaldehyde-thiosemicarbazone) has been found 10 times greater in activity than streptomycin and 100 times more active than PAS. It is very effective against acute and sub-acute pulmonary lesions, being a powerful killer of the tubercule bacilli, both in vitro and in vivo. Dramatic results have been observed in cases of TB of the larynx, of the lymphatic glands, of the epiglottis, empyema and pleurisy with effusion. In 200 TB cases studied, about 50% were found clinically and radiologically better after 6 months of treatment. Sputum became negative for acid-fast bacilli on smear after 6-8 weeks; progress of cavernous phthisis was held back, exudate formation decreased in cases of tuberculous empyema and pleurisy, and pain on swallowing disappeared.

TB-1 may also be indicated in combination with streptomycin, PAS, and collapse therapy. Salutary effects have been demonstrated with this combination, but TB-1 still stands as first choice in the treatment of tuberculosis. The dosage (1 mg/kg body weight for Filipinos) must be individualized according to the stage and response of tuberculosis tissue and reaction of the patient to the drug. Side-reactions observed such as itchy dermatosis, vomiting, nausea, and anemia are very easily corrected.

615.779:616.24-002.5

200. Isoniazid in tuberculosis. Fidel R. Nepomuceno, Adriano C. Salvador and Andres Y. Cruz. MD Journal, July 1953, v.2, no.7, p.841-845. (Paper read at the Pan-Pacific TB Conference, Philippines, April 13-26, 1953)

A 3-month study of isoniazid in the treatment of tuberculosis at the San Lazaro Hospital is presented. Observations were made on 121 patients (61 males and 60 females) who had used streptomycin and PAS before. Each patient was given 3-5 mg/kg body weight of isoniazid of different brands in divided dosage after meals. Marked improvement in appetite, weight, X-ray picture, cough and expectoration was observed. Fever disappeared mostly in the first and 2nd week of therapy; sputum conversion was 30.18% at the end of 3 months. Very little toxic reactions were observed. However, drug resistant organisms were reported to have emerged in majority of the cases, after 2 to 3 months treatment with isoniazid alone. Because of this, further studies of the drug is necessary before it is utilized alone in the treatment of tuberculosis.

615.779:616.24-002.5

201. The rationale of aerosol mist therapy in pulmonary tuberculosis. Manuel Quisumbing, Sr. Journal of the Philippine Medical Association, Nov. 1956, v.32, no.11, p.678-682. illus. 8 refs. (Paper read before the 49th annual meeting of the Philippine Medical Association, held on April 17-21, 1956, Manila)

Aerosol therapy is applicable to all cases of pulmonary tuberculosis. This can be done by the use of a portable aerosol outfit such as the Del Vilbiss No.40 or the Aero-Mist nebulizer and compressor with a mask connected by a tube to the Aero-Mist electric pump, or a tank of compressed air. The use of oxygen in aerosol therapy is not recommended because an aerobic medium may be more lethal to the mycobacterium of tuberculosis. Antibiotics which can be used are: Streptomycin, Dihydro-streptomycin, Combi-strep, Ambistryn, and Duo-Strep. Streptohydrazide is preferred for aerosol therapy. The treatment is done every 3 days together with oral administration of antibiotics such as isoniazide and its derivatives. For better results, the patient should be instructed to inhale deeply after a forceful exhalation, so that the fine drops of the antibiotic may reach the finest bronchi.

Two case reports of successful aerosol treatment are reported.

615.779:616.5

202. Prednisone (delta-1 dehydrocortisone) in cutaneous diseases (clinical studies in 83 cases). Manuel C. Fernandez. Acta Medica Philippina, April-June 1955, v.11, no.4, p.861-868. tables.5 refs. (Paper read at the 49th annual meeting of the Philippine Medical Association, Manila, April 17-21, 1956)

The 10-month study on 83 cases of various skin diseases treated with prednisone included the following: acute disseminated lupus erythematosus, drug eruptions, contact type eczematous dermatitis, atopic dermatitis, lichen simplex chronicus, exfoliative dermatitis, pemphigus vulgaris, infantile eczema, dermatophytids, pustular bacterid of Andrews, acute urticaria, herpes zoster opthalmicus, psoriasis universalis with arthropathy, and lepra reactions. The treatment with prednisone or deltacortisone (delta-1 dehydrocortisone) ranged from one week to 10 months. Adults were given 20 mg daily (divided into 4 doses) while children and infants were given lower doses. The dosage was gradually reduced by 2.5 mg to 5 mg every 2-3 days until optimum maintenance dose was reached. All cases showed marked improvement ranging from a slight, temporary relief to a complete and permanent remission within 24-48 hours after the onset of therapy. In diseases which were primary in nature, remissions were maintained only during administrations of the steroid. As a whole, prednisone is 3-5 times more effective, faster-acting and has less side effects than the older corticosteroids (ACTH, cortisone, hydrocortisone). The side effects such as mild epigastric discomfort, insomia, mild facial mooning, generalized sensation of warmth, euphoria, slight elevation of blood pressure and hyperidrosis were very easily corrected upon withdrawal of the drug or reduction of dosage. The benefit derived from prednisone, like the older steroids, is suppressive and not curative.

615.779:616.5

203. Studies on the isolation and identification of Candida species and their in vitro sensitivity to mycostatin. Antonio V. Jacalne. Acta Medica Philippina, March 1958, v.14, no.3, p.151-158. tables. 22 refs.

The experiment was conducted from July 1956-February 1957 at the Institute of Hygiene, UP. Test organisms were isolated from the patients in the UP-PGH Medical Center and identified as C. albicans C. tropicalis, C. krusei, C. stellatoidea, C. pseudo-tropicalis and C. guillermondi. Results of the in vitro sensitivity test, using the paper-disc method, of the Candida organisms to mycostatin revealed that mycostatin is highly effective for the therapeutic control of these fungi. Of the 522 cultures tested, 93.7% was sensitive to 100 units of mycostatin and only 6.3% was resistant. No attempt was made to test the in vivo sensitivity to mycostatin of said fungi.

615.779:616.6

204. Antibiotic screening of urinary tract infections. Paulo C. Campos and German Castillo. Journal of the Philippine Medical Association, Aug. 1956, v.32, no.8, p.461-465. table. 11 refs.

The organisms encountered in the study of 9 patients (6 of which eventually died) in the PGH with urinary tract diseases are: Bacillus coli, Staphylococcus aureus, Bacillus pyocyaneus, Klebsiella pneumoniae, and gram-positive cocci (undet.). These were tested with Bacto-Sensitivity discs for antibiotics (5000.32) which included aureomycin bacitracin, chloromycetin, dihydrostreptomycin, penicillin, ilotycin, furadantin, polymyxin B. and tetramycin; for sulfonamides (5077.32) gantrisin, sulfadiazine, and triple sulfa. Tabulated results of the tests show that the organisms did not follow any stereotyped pattern in their susceptibility to the various agents employed. The study revealed the possibility of the emergence of new strains of antibiotic-resistant bacterial pathogens, such that the usual therapeutic agents used, even in supposedly adequate doses, can not be implicitly relied upon. It was observed that the sulfonamides apparently failed to render the urine sterile, in spite of high concentrations used.

The result of the study was found inconclusive. Attention to the choice of the proper dosage and therapeutic agent and a re-examination of the sensitivity of the various pathogenic organisms of the urinary tract to the different agents are in order.

615.779:616.992

205. Comparison of the antifungal activity of the antibiotic B-40 and bacillin. Elizabeth McCcy and Josephine Marquez-Malixi. Journal of the Philippine Pharmaceutical Association, Feb. 15, 1954, v.41, no.2, p.47-67. tables, illus. 44 refs.

The methods of assay employed are crude streak, agar plague, paper disc-plate, and dilution methods, using C. albicans 477, C. albicans, Abbot strain, Saccharomyces cerevisiae, C. tropicalis, and Torulopsis utilis, as test organisms.

The results of the crude streak method showed that both antibiotics have similar activity against the various organisms on different types of culture media. Both are inactivated in the presence of complex organic matter, but in the presence of utilizable carbohydrates, both showed slightly greater activity. Likewise, the agar plague method showed marked similarities between the 2 antibiotics.

The paper disc-plate assay revealed that both antibiotics have fungistatic activity.

In the dilution test, bacillin showed slightly more activity than antibiotic B-40, inhibiting growth of C. albicans 477 at 1:32 dilution after 72 hr. incubation; whereas, B-40, only retarded the growth of the organisms.

The effect of aureomycin, bacitracin, penicillin, sodium, dehydrostreptomycin, bacillin, and B-40 were also tested against C. albicans, C. albicans 477 and C. albicans Abbott. C. albicans 477 was found more sensitive to both B-40 and bacillin as well as to the other antifungal agents.

615.779:616.993

206. Iodaseptine cortial (iodobenzomethylformine) in the treatment of chronic amebiasis. Candido M. Africa and Eusebio Y. Garcia. Journal of the Philippine Islands Medical Association, June 1935, v.15, no.6, p.305-311. 12 refs. (Paper read at the Philippine Science Convention, Feb. 27, 1935)

The successful results in 5 cases reported justify further trial of iodaseptine cortial. This amebicidal agent is nontoxic and can be given in large amounts for long periods, either intramuscularly or intravenously.

615.779:618.15

207. Mycostatin for the local treatment of monilia vulvo-vaginitis: a preliminary report. Gavino Sepulveda, Jr. and Leandro M. Ibarra. Journal of the Philippine Medical Association, July 1956, v.32, no.7, p.421-429. illus. 13 refs.

Mycostatin vaginal tablets and ointment were used in 9 cases (3 pregnant non-diabetic and 6 non-pregnant diabetic) of vulvovaginitis caused by Candida albicans. The 3 non-diabetic patients were treated with Mycostatin tablets twice a day, 2 of whom were treated with the ointment at the same time. The dose was reduced to once a day upon improvement. The diabetic patients were likewise treated with Mycostatin tablets and were given daily insulin shots (20 units) except one case who received the same dose twice a day. The results, in general, were encouraging. Complete disappearance of vulvar pruritus was observed in an average of 8 days. In one case, it disappeared as early as 4 days, while another case took 17 days. The vulva became almost normal in appearance in 7 days and completely normal in 17 days.

The advantages of Mycostatin vaginal tablets over other preparations are: (1) it acts solely against fungi and does not destroy the normal useful bacteria (Doderleins' bacilli) which enhances the defense mechanism of the vagina; (2) it contains lactose which stimulates the growth of Doderlein's bacilli which is responsible in restoring the vaginal flora to normal; (3) *Candida albicans* does not become resistant to Mycostatin; and (4) it has no side effects even after prolonged use.

615.78

208. Clinical experiences with Hexylcaine HCl ('Cyclaine') for topical infiltration and subarachnoid anesthesia. Quintin J. Gomez, Luis E. Torres and Marina Mendoza. Journal of the Philippine Medical Association, Feb. 1956, v.32, no.2, p.73-81. tables, graphs. 7 refs. (Paper read at the annual convention of the Philippine Medical Association held in Baguio City, May 1955)

The different preparations of Hexylcaine HCl used were: 1% solution, 5% solution and jelly form, 2.5% solution in 10% dextrose, and 5% solution in 8.4% dextrose. The 1% solution used for infiltration purposes showed no particular advantage over Procaine HCl 2% solution, as far as the speed of onset of analgesia is concerned. But the duration of analgesia is longer, averaging 4 hours using the drug alone without vasoconstrictors. In 100 cases, there have been no reactions attributable to the drug; amounts ranging from 10-50 cc had no toxic effects. Only one or two cases complained of soreness at the site of the injection, but whether this was due to the drug or not could not be determined.

The 5% solution has been found very effective with the analgesia effected in an average of 2 min. In 350 cases in which it was used as a topical anesthetic in the urethra, only one case developed a reaction (fainting and weakness which disappeared with oxygen and analeptics). It was deemed too potent topically as manifested by a bradycardia and prolongation of conduction time in several ECGs taken, but this effect wore off in less than 15 min. On the other hand, the jelly form showed no advantage over 1/2% Cocaine as far as analgesia is concerned, except that it serves as a lubricant as well. In 100 cases, only 2 or 3 cases complained of initial smarting sensation.

Tabulated results of the effects of 2.5% solution in 10% dextrose and 5% solution in 8.4% dextrose in 40 cases are presented. The former was found too hyperbaric and resulted in high levels of anesthesia effected in 2-3 min. by an average dose of 25-50 mg. The analgesia and relaxation produced were excellent. With the latter solution the anesthetic levels were better controlled. Only 1-2 cases developed abnormally high spinal anesthesia. Both solutions exhibited no particular advantage over the other. The anesthesia and muscular relaxation produced and the duration of analgesia and motor paralysis were practically the same. No mortality was reported in the 40 cases; only 2 cases had post-anesthetic headache and 2 had bladder atony, one of which lasted for almost 4 weeks.

Further trials with a hyperbaric solution for spinal anesthesis are suggested.

615.78:582.951.4

209. Pharmacodynamics of Datura alba. Faustino Garcia and Romulo Guevara. Philippine Journal of Science, June 1922, v.20, no.6, p.599-609. tables, plate. 13 refs.

The toxic effects of aqueous

and alcoholic preparations of "talampunay", Datura alba Nees, were observed in dogs and cats and were found to correspond to those produced in man. The following effects were noted: (1) increased heart rate, blood pressure and decreased pulse pressure; (2) dilatation of pupils; (3) salivary secretion ceased; (4) endings of the vagus nerve were depressed even by small doses (0.005 mil) and completely paralyzed by slightly larger doses (0.8 centimils); (5) it tended to stop intestinal contraction by peripheral action.

In larger doses it produced excitement, incoordination, and depression with tendency to sleep.

The alkaloidal content of "talampunay" seeds is 5% as assayed biologically using atropine or hyoscine as standard. The recommended therapeutic doses for man are from 0.06-0.12 g and 1-2 drops of the fluid extract.

615.78:616-089

210. Clinical comparison of two newer intravenous barbiturates for anesthesia. Quintin Gomez and Ariston Cortes. Acta Medica Philippina, Jan.-March 1954, v.10, no.3, p.497-499. (Paper read at the annual convention of the Philippine Medical Association, 1954)

Kemithal (sodium salt of 5-Δ^2 cyclo-hexenyl-5 allyl-2 (sodium salt of 5 allyl-5 (1'methylbutyl) 2-thiobarbituric acid) were found to have no particular advantage over the other but are definitely superior to sodium pentothal. In equi-active doses they produce almost an equal degree of respiratory and circulatory depression. The incidence of laryngospasm with both is less and recovery time is prompt. Post-operative complications are less with both than in sodium pentothal. No case of irritation or thrombosis at the site of venipuncture was observed with either Surital or Kemithal. Kemithal, which is about ½ as potent as Surital, seems to have a less depressant effect in the circulatory system especially in long operations than sodium pentothal. Surital, on the other hand, approximate the potency of sodium pentothal, but it is claimed to have advantages because it has analgesic properties of its own. Pathologic reflexes seem to be obtunded more effectively by Surital than by sodium pentothal or Kemithal.

Kemithal was first used in PGH on February 11, 1952 and has since then been used in 57 major operations ranging from appendectomy to cardiac, brain, and lung operations. Surital has been used since January 7, 1953, on 19 cases ranging from hemorrhoidectomy to craniotomy and including cardiac, lung, and abdominal operations.

615.78:618.2

211. Demerol and scopolamine in obstetrics. G. Rustia and L. Almeda. Journal of the Philippine Medical Association, Feb. 1948, v.24, no.2, p.61-65. 6 refs.

Demerol has 3 main actions: analgesia, spasmolysis and sedation. As an analgesic, oral administration of demerol was found less satisfactory than parenteral administration. 100 mg of demerol given parentally approaches the effectiveness of 1/6 g of morphine. As a spasmolytic, it relieves visceral pain by raising the pain threshold but also by relaxing smooth muscles. Unlike morphine, it diminishes or abolishes the segmental contractions and toxicity of the intestine without altering its propulsive action. Prolonged use of the drug does not result in constipation. As a sedative, it shortens the induction time and prolong the anesthetic time of a given amount of nitrous oxide-oxygen. Larger parenteral doses results usually in sleep. It was found as satisfactory a pre-anesthetic agent as morphine. It has no effect on the metabolic rate. Dryness of the mouth, flushing of the face, perspiration, dizziness were common untoward reactions observed; nausea and vomiting were less frequent than with morphine. Doses of 100 mg or more given from 10-20 times daily produced some toxic effects.

Scopolamine is obtained from the dried rhizome of *Scopola carniola*. It produces a fair degree of amnesia in combination with demerol, as observed in 200 obstetrical cases at the Philippine General Hospital.

615.78:618.2

212. Paraldehyde as an amnesic agent in obstetrics. Henry S. Waters. Journal of the Philippine Islands Medical Association, Aug. 1935, v.15, no.8, p.413-416. (Paper read before the West Visayan District Medical Convention held in Iloilo, April 20-21, 1935)

The amythal-olive oil-paraldehyde combination was tried on primiparous and multiparous women. It gave a prolonged effect lasting from 5 to 12 hr. It did not prolong labor even when given early, nor increase fetal respiratory depression. No untoward reactions were observed; there has been no maternal mortality reported. The combination is very cheap, safe, and easy to administer.

Amythal makes the patient drowsy, but does not abolish pain or consciousness. Paraldehyde and oil alone, even in large doses, will not produce the desired anesthetic effect without amythal.

615.78/.79:616-089

213. Recent advances in antibacterial chemotherapy including their uses as adjunct to some surgical procedures. Romulo Guevara. Journal of the Philippine Pharmaceutical Association, Jan. 15, 1950, v.37, no.1, p.3-14. (Paper read in the weekly staff meeting, Department of Surgery, College of Medicine, UP, Dec. 21, 1949 at the Guazon Memorial Lecture Hall, PGH, Manila)

Two recently developed chemotherapeutic agents are the sulfonamides and the antibiotics. Latest recommendations on the use of sulfonamides since its introduction in 1936, is the employment of the combination preferably, of three derivatives which has been found to produce synergistic activity and less toxicity and side effects. Of its more than 5,000 derivatives, sulfadiazine has the optimal antibacterial activity; sulfamerazine, a derivative of sulfadiazine, was found to be ideal against bacterial infections. Succinylsulfathiazole is preferred to sulfaguanidine in the treatment requiring surgical intervention in the intestinal tract, both pre-operatively and post-operatively. Phthalylsulfathiazole was mentioned as a possible replacement for succinylsulfathiazole because of its relatively poor absorbability. Treatment of wounds, skin and mucous membrane infections with sulfonamides was found unsuccessful, however, marfamil was found an efficient local anti-infective.

Of the 150 known antibiotics, penicillin, streptomycin, dihydrostreptomycin, chloramphenicol, and aureomycin are among those of well established value. Pharmacologically penicillin is inert but has the widest margin of safety, as evidenced by its success in the prophylaxis and cure of a variety of surgical conditions due to gram-positive cocci. Presently, it is administered in combination with streptomycin as a post-operative treatment in intestinal surgery, particularly after appendectomy. Streptomycin with the reduced daily dose of 0.5 g is presently administered both as an adjunct and as a treatment in various forms of tuberculosis; in urinary tract infections; chancroid, plague, Friedlander's bacillus infections; ganuloma inguinale; and rat bite fever due to *Streptobacillus moniliformis*. Chloramphenicol or chloromycetin, which is practically non-toxic in recommended dosage, is effective in the treatment of acute brucellosis, typhoid, urinary tract infections caused by *Escherichia coli*, *Aerobacter aerogenes*, *Proteus vulgaris*, and rickettsial diseases. Aureomycin is the choicest drug against viral infections some of which are: primary atypical pneumonia, psittacosis, lymphogranuloma venereum, granuloma inguinale, and rat bite fever due to Spirillum minus. It vies with chloramphenicol in the treatment of urinary tract infections and rickettsial diseases. In combination with streptomycin and chloramphenicol, it is prescribed for infections caused by gram-negative organisms: with penicillin and streptomycin for gram-positive cocci.

Tyrophricin, bacitracin, and polymyxin are minor antibiotics discussed. It was concluded that the intelligent use of sulfonamides and antibiotics which greatly depends upon an accurate bacteriologic diagnosis, will obviate unnecessary medication, risk of toxicity reactions, and allergic phenomena.

PHYSIOTHERAPY AND OTHER TREATMENTS

615.361:616-006.6

214. The hormonal management of prostatic cancer. Domingo Antonio, Jr. MD Journal, Feb. 1952, v.1, no.2, p.61-63. (Paper read in the meeting of the Catholic Physician's Guild of the Philippines, MCU Hall, Jan. 22, 1952)

Extensive studies conducted in 1941 demonstrated that the growth of prostatic cancer is inhibited when the testicular androgens are removed by bilateral orchiectomy or are neutralized by the administration of the female estrogens. Cases where orchiectomy alone had failed to bring about a regression of the cancerous lesions or an abatement of the metastatic pains, have not been benefited by subsequent administration of estrogens. It was also proven that only the prostatic cancer of the adenocarcinomatous type (which usually represents about 80% of the cases) is benefited by this therapy. The prostatic tissue of the undifferentiated or scirrhous variety (which constitutes the remaining 20%) fails to be influenced by hormonal changes.

Clinically, orchiectomy or estrogen therapy is followed by dramatic relief of pain, increase in body weight, regression of the original prostatic growth, and changes of repair in the osteolysis of the metastatic lesions. Follow-up radiological studies have many times revealed a diminution in size or even complete disappearance of the metastatic bony or pulmonary shadow. In a series of 569 patients with prostatic cancer, under endocrine therapy, only 30% died, while in a series of 783 patients without the benefit of hormonal therapy, 70% died.

615.362:616.15

215. Thyroid extract in the management of hypertension. Edward Z. Fang and Baltazar V. Reyes, Jr. Acta Medica Philippina, July-Sept. 1953, v.10, no.1, p.311-336. tables. 48 refs. (Paper read at the 8th scientific meeting of the Philippine Heart Association, Sept. 3, 1953)

A review of the literature on hypotensive drugs that have been used in the treatment of hypertension and the physiological basis for the management of the same by thyroid extract are presented. The mechanisms through which this therapy can lower the blood pressure are: (1) vasodilation effect of the thyroid hormone; (2) possible prevention or arrest of arteriosclerosis; and (3) antagonistic actions of thyroid hormone on the adrenal hormones.

Tabulated data taken from the Medical Dispensary of the Outpatient Department of the Philippine General Hospital on 50 hypertensive patients, 32 females and 18 males mostly within the age-bracket of 41-50, showed that thyroid therapy, if properly administered, lowers blood pressure without increasing the pulse rate. The contraindication cited by Menof, which are congestive heart failure, gross cardiac enlargement, complete heart block, anginoid attacks, and coronary thrombosis, were not substantiated in the study. It was confirmed that hypertensives with cerebral symptoms responded well under said therapy.

Except for a few side effects

which were corrected by proper dosage and careful surveillance, thyroid extract was found more advantageous than other hypotensive agents. High percentage of response lowering of diastolic pressure, little untoward effect, simple administration, cheapness and suitability for obese hypertensives are advantages mentioned.

615.373:616.927

216. Observations on the use of typhoid convalescent serum in the treatment of typhoid fever. Pedro T. Lantin, Sergio Morales and Jose Silva. Journal of the Philippine Islands Medical Association, Dec. 1939, v.19, no.12, p.727-731. table. 2 refs.

Blood was taken from the veins and the serum was separated from the clot aseptically and tested for sterility. Treatment was done on 17 cases of toxic types of typhoid fever. With an average dose of 200 cc, injected intramuscularly or intravenously, toxic symptoms were controlled and marked improvements were observed. It was noted that intravenous administration was more beneficial than the intramuscular route. Only 2 fatal cases were encountered. No manifestations of serum reactions were observed.

615.38:616.24

217. Hemotherapy in pneumonia. Jose Albert and M. B. Abad. Journal of the Philippine Islands Medical Association, July 1936, v.16, no.7, p.431-436. tables. 6 refs.

The 3-year study (1933-1935) on the treatment of pneumonia in children by intramuscular injection of adult human whole blood, was based on 76 severe cases of bronchopneumonia and 37 severe cases of lobar pneumonia. The rationale of the treatment was believed to be of the principle involved in the so-called foreign protein or shock therapy. 10-20 cc of blood was injected every 2 or 3 days or more. A few of the cases were improved in 1 or 2 days after 1 injection; many improved after 2 or more injections. The other cases did not improve at all. No untoward reactions were observed.

It was concluded that the treatment has a decided beneficial effect that further trial is recommended even in apparently hopeless cases. 8 case reports are presented.

615.84:616-001

218. Ultrasonics in traumatic injuries. Arturo A. Ramirez, Liborio Ramirez and Filadelo de Leon. Journal of the Philippine Medical Association, Feb. 1958, v.34, no.2, p.111-116. illus. 10 refs. (Presented at the scientific meeting of the Agusan Medical Society June 23, 1957)

Ultrasonics, a form of physical therapy, can be utilized in 3 ways: (1) radicular treatment or the application of the sound head at the point of exits of the nerves from the spinal cord; (2)directly on the site affected; and (3) combination of the above 2 methods.

13 case reports of traumatic injuries treated with ultrasonics are presented. The sound head used has an area of 5 sq. cm and emits 3 watts/sq.cm. It gives a minimum strength of 0.5 watts and a maximum of 15 watts. The apparatus is carried by a 220-volt generator and a self timer as an integral part of the apparatus. The length of time of application is from 3-15 min.

615.849:616.39

219. Anorexia, weakness, restlessness and Parkinsonism associated with hypokalemia following radioactive iodine therapy. Paulo C. Campos, Irineo Lawas, Visitacion Manipol and Alicia O. Clemente. Acta Medica Philippina, Dec. 1958, v.15, no.2, p.123-131. graphs.

In 10 out of 52 hyperthyroid patients treated with varying doses of radioactive iodine, the symptoms observed were very suggestive of thyrotoxic aggravation, which is referred to as the thyroxine release syndrome. However, in 4 severely thyrotoxic cases, the symptoms were apart from those in the thyroxine release syndrome, which could aptly be called as a case of thyroid storm or thyroid crisis. All cases uniformly presented anorexia; marked weakness, occasionally progressing to complete quadriplegia; restlessness; tremors, later on progressing Parkinson-like movement; and auricular fibrillation on or about the 3rd or 4th week after therapy, lasting for 1-4 weeks with spontaneous improvement in all cases. Calcium-phosphorus values, cholesterol values, blood pH, blood sugar, serum sodium, and chlorides were all normal. Protein-bound iodine (PBI) values showed no relation to the symptoms.

4 case reports are presented together with graphed findings of each case. Presently, the causes of this set of symptoms are not yet defined.

615.849:616.5

220. Chromoblastomycosis: first case in the Philippines. Socorro Aunario Simuangco and Carlyn Halde. Journal of the Philippine Medical Association, March 1955, v.31, no.3, p.117-120, illus. 8 refs.

The first case of chromoblastomycosis in the Philippines and the third in the world is reported in which the organism Fonsecaea compactum was isolated. The case was that of a 58-year old man treated at the North General Hospital in September, 1950.

The treatment consisted of bimonthly X-ray 150r (80 KV, 5 MA, 8-inch FSD) unfiltered, and refrigeration of lesions with solid CO_2. Local treatments made were $KMnO_4$ compresses and application of gentian violet. A saturated solution of KI was also given orally 3 times daily, starting with 10 drops gradually increasing to 25 drops. Successful results were obtained after 2 months of treatment.

615.849:617.71

221. The prevention of recurrence of pterygia by beta radiation. Francisco V. Quilala. Journal of the Philippine Medical Association, Nov. 1955, v.31, no.11, p.633-636. tables. (Paper read during the scientific meeting of the 48th Annual Meeting of the Philippine Medical Association, April 29, 1955, Baguio City)

The new procedure tried in treating pterygia is to operate and expose it to beta radiation at once to prevent recurrence. This practice should be especially considered for thick, vascular ones. Since the danger of cataract formation is directly proportional to the dose of beta rays, the risk is proportionally less in pterygia that is operated on for the first time than that which had been operated on for several times, as the dose needed in the former is smaller.

For non-recurrent pterygia, one exposure of 2000 rep. is usually sufficient and for recurrent pterygia, 6000 rep. or more. The following factors are to be considered in determining the number of exposures and total dosage of beta rays: (1) whether the pterygia is recurrent or not, (2) length of time the pterygium has existed, and (3) amount of vascularization present.

Of the 48 cases of pterygia encountered in August 1954 to March 1955, there was no recurrence in all 26 cases operated on for the first time and subjected to beta radiation. In the remaining 22 cases of recurrent pterygia (those which have had 2-9 operations), there were 7 cases of recurrence.

TOXICOLOGY

615.9:581.135.51:582.662

222. Toxicity of oil chenopodium when administered together with castor oil. Romulo Guevara. Journal of the Philippine Medical Association, June 1947, v.23, no.6, p.259-267. 15 refs. (Read at the 40th Annual Convention of the

Philippine Medical Association, Section on Medicine and Pediatrics, May 10, 1947, Manila. Reprinted in the Journal of the Philippine Pharmaceutical Association, July 15, 1947, v.34, no.7, p.291-298)

27 Philippine cats were used in the 3-month study conducted in 1947. 18 cats were given different doses (0.2-0.45 cc) of chenopodium oil each dose dissolved in 15 cc of castor oil and 9 (control series) were given chenopodium alone suspended in distilled water. The immediate and ultimate effects after administration revealed that the toxicity of chenopodium oil is not increased, but rather decreased (by 100%) when given in combination with castor oil. The lethal dose (L.D.) was found to be 0.2 cc/kg-wt of cat when given alone and 0.44 cc whem combined with castor oil. The maximum lethal dose (M.L.D.) was not determined although it was indicated to be between 0.15-0.2 cc given alone and 0.35 cc/kg-wt when in combination with castor oil. The maximum tolerated dose (M.T.D.) was found to be 0.1 cc/kg-wt when given alone and 0.3 cc/kg-wt when combined with castor oil. The usual side-effects observed were salivation, vomiting, and loss of appetite.

It was concluded that if man and cat had identical susceptibilities the L.D. for Filipinos of 50 kg.wt. would be 10 cc of chenopodium given alone and 20 cc if combined with castor oil; the M.T.D. would be 5 cc if given alone and 15 cc if mixed with castor oil. It was also concluded that local cats are two times more susceptible to chenopodium oil than U.S. cats.

615.9:582.675.4

223. The crystalline principle of Tinomiscium philippinense Miers: its identification as picrotoxin. Natividad M. Feliciano and Alfredo C. Santos. Journal of the Philippine Pharmaceutical Association, March 15, 1947, v.34, no.3, p.81-87. tables. (Part of a dissertation submitted to the Committee on Graduate Studies, UP by N. M. Feliciano in partial fulfillment of the requirements for the degree of M.S.)

The crystalline compound gave a melting point of 200-200.5°C and dissolved in benzene, alcohol, glacial acetic acid, acetone, hot and cold water, ether, $CHCl_3$, and conc. sulfuric acid. Preliminary tests showed that the compound is neither a glucoside nor an alkaloid; tests for nitrogen and methoxyl groups also gave negative results. With benzene, 2 compounds were formed: one melting at 240-241°C and the other melting at 200-201°C. A bromine derivative melting at 284-285°C was formed with bromine.

Several tests proved that the principle consists of picrotoxin. Bio-assay on frogs gave symptoms identical with those produced by authentic picrotoxin. The minimum convulsive dose was found to be 0.004 mg/g body weight, the convulsion lasting for 70-75 min. A dilution of 1:20,000 proved fatal on fish. Other chemical tests made were: Fehling's, ammonical silver, oxidation, Melzer's, and Langley's.

615.9:582.757.2

224. Toxicity of the milky juice of Exoecaria agallocha Linn. (buta-buta; alipata). Faustino Garcia. Journal of the Philippine Islands Medical Association, Feb. 1936, v.16, no.2, p.91-93. illus.

A drop of the latex from the bark of "buta-buta" on the eye of a rabbit, a cat, and a frog caused inflammatory reaction. On the skin of cats, slight hardening was observed; on the nasal mucosa, slight reddening was noted after application.

The lethal dose for the different animals were determined: for frog, 0.1 cc/kg body wt; fish "martinico", 1:30,000 dilution; cat (by vein) 0.01 cc/kg body wt; dog (by vein) 0.005 cc/kg body wt. Based on the above findings, the lethal dose for man weighing 50 kg was found to vary from 5-12 cc by mouth or subcutaneous injection and $\frac{1}{4}$ to $\frac{1}{2}$ cc by intravenous injection.

615.9:582.764

225. The poisonous constituent of Coriaria intermedia Matsumura. Joaquin Marañon. Philippine Journal of Science, March 1932, v.47, no.3, p.359-367. plates. 12 refs.

Philippine Coriaria intermedia Matsumura was found to contain coriamyrtin. The poisonous principle was obtained from its fruits (0.176%) leaves (0.069%), and stems (0.041%). Its toxic effects were observed in guinea pigs; subcutaneous injection of 2 cc of the concentrated extract resulted in clonic convulsions and death after 30 min; with 0.55 cc of an aqueous solution, violent emprosthonic convulsion, followed by clonic movements were observed before the pigs finally died. A dose of 0.14 mg of coriamyrtin in aqueous solution produced the symptoms but the pigs recovered after 2 hrs.

615.9:582.931:581.43

226. A preliminary study on the roots of Jasminum sambac (Linn.) Ait. Virginia U. Castillo. Manila, Philippine Women's University, [1956] 50p. tables, illus. 48 refs. (Thesis. M.S. in Pharmaceutical Chemistry)

Preliminary analysis of the roots of Jasminum sambac (Linn.) Ait. popularly known as "sampagita", collected from Lipa City (Batangas) revealed traces of acids and acid salts, saponins, reducing sugars, glucosides, resins, and alkaloids. They were found to contain 11% moisture (Toluene Method), 10.23% total ash, and 3.91% acid-insoluble residue.

To confirm reports (by Stuart) that the roots are very poisonous and have powerful sedative property, pharmacological experiments were performed on rats having average weights of 231.5 mg (males) and 218.5 mg (females). Powdered roots were macerated with 95% C_2H_5OH from which 10% aqueous suspension of the extract was prepared and then administered to the rats. The following observations were made: (1) oral administration of 4 cc (equivalent to 396 mg of powdered air-dried roots) of the produced hypnotic effect on rats which lasted for 50 min; (2) hypnotic effect lasted longer (3 hr.) when the same dose was given by intraperitoneal injection; (3) freshly prepared extract was more effective than long standing one the active principle then could be one whose physiological action is diminished after standing, such as a glycoside which is hydrolyzed to a less active constituent on standing or substance which on auto-oxidation yields less toxic principles; and (4) female rats may possibly be more susceptible than male rats. The minimum toxic dose of a 20% aqueous colloidal suspension of the extract was found to be 61.1 mg/kg body weight.

A crude alkaloidal extract was obtained by the Filter Paper Chromatography Method in an attempt to isolate the suspected active potent principle responsible for the hypnotic action.

615.9:591.145:638.7

227. Cobra venom - its possibilities in Philippine medicine. Walfrido de Leon. Journal of the Philippine Medical Association, Jan. 1946, v.22, no.1, p.1-6. 8 refs.

The toxicity of cobra venom extracted from Naja naja philippinensis has been found to be higher than other cobras. The yield of venom per extraction varies from 0.13 g to 0.7214 g. A dose of 0.0114 g of venom was found sufficient to kill a man weighing 50-60 kilos.

In very small doses, it is found to be analgesic and favors clot formation. A dilution of 1:60,000 has been frequently used to start a treatment at an initial dose of 1 cc. Cobra venom has been successfully used in relieving pains in post-operative cases, in arthritis, in dry gangrene complicating diabetes, and as an anti-coagulant in hemorrhagic disease. Cobra venom is free from any side-effects, unlike opium and other drugs, such that it may be given continuously without danger.

Trial in cases of amputation, scratica, migrain, and similar chronic conditions accompanied with neuralgic or protracted pains is suggested.

615.9:615.41

228. Study on the toxicity of Banabins. Faustino Garcia and Aida T. Davila. Journal of the Philippine Medical Association, May 1957, v.33, no.5, p.403-409. tables. 5 refs. (Read at the 50th annual Convention of the Philippine Medical Association May 7, 1957, Baguio City)

The results of toxicity test made on rabbits indicated that oral administration of Banabins powder extract produced only hypoglycemia without toxic or fatal effect, even at a large dose as 8000 mg/kg body weight. Intramuscular administration of small doses of Banabins produced hypoglycemia; intraperitoneal injection of 0.6-0.8 g Banabins dissolved in 12-16 cc of 2% Na_2CO_3 solution proved fatal. The use of relatively large doses in diabetics produced no toxic effect but only lowering of the blood sugar levels. However, one case found very susceptible to insulin, reacted similarly with Banabins tablets.

615.9:615.73

229. Effects of therapeutic and toxic doses of atropine sulfate and tincture of belladonna on Filipinos. Faustino Garcia. Journal of the Philippine Islands Medical Association, Feb. 1939, v.19, no.2, p.81-88. tables, graphs. 5 refs.

With small therapeutic doses of 0.50 mg atropine sulfate and 10-15 drops of tincture of belladonna, the only distinct effects observed were slowing down of pulse rate and a slight dryness of throat or none at all. With doses of 1.0-1.5 mg atropine sulfate and 0.5-1.00 cc tincture of belladonna the effects observed were marked slowing of pulse rate, intense dryness of throat, heaviness of head in most cases, and headache or giddiness. Warm sensation was present in all cases given atropine and in only one case given tincture of belladonna; doubtful dilatation of pupils was also observed in 2 cases each given atropine and tincture of belladonna. With 2 mg atropine sulfate and 1.5 cc tincture of belladonna, the effects were rapid pulse rate, moderate or intense dryness of throat, heaviness of head, headache or giddiness, warm sensation, slight flushing of face, and slight dilatation of pupils in 2 cases.

Two cases of accidental poisoning from 20 mg atropine sulfate developed marked toxic symptoms, but recovered from delirium and flushing of the face within 24 hr and from dilatation of pupils and disturbed vision in 5-7 days.

4 children also accidentally given 5 cc tincture of belladonna developed marked toxic symptoms, but recovered from flushing of the face and restlessness within 24 hr.

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